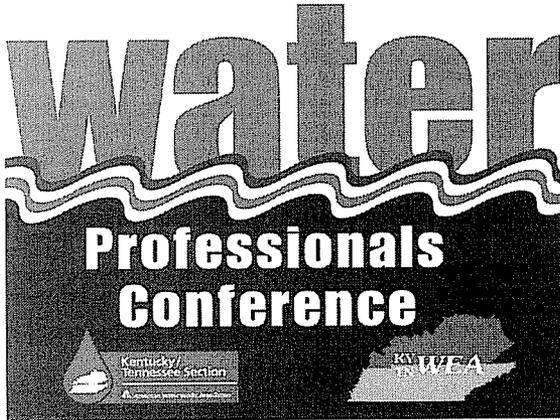


RECEIVED

SEP 06 2005

PUBLIC SERVICE  
COMMISSION



Case 2005-00362

September 6, 2005

Ms. Jess Thompson  
Public Service Commission  
211 Sower Boulevard  
Frankfort, Kentucky 40601

Dear Ms. Thompson:

Attached please find a complete submittal package for the 2005 Water Professionals Conference to be approved by the PSC for use by water district board commissioners for training hours.

Should you have any questions, I can be reached at 564-3410.

Sincerely,

A handwritten signature in cursive script that reads "Julie W. Roney".

Julie W. Roney  
KY-TN AWWA Chair-elect  
Technical Assistance and Outreach  
Drinking Water Branch  
Division of Water

**Application for Approval of Courses for Continuing Education Credit**  
**Kentucky Division of Water / Operator Certification Section**  
 14 Reilly Rd., Frankfort, Kentucky 40601

**I. Course Sponsor Information**

A. Sponsoring Organization (school, business, association, etc.)

KY/TN Section AWWA

B. Key Contact Person:

Name & Title Mary Carol Wagner Water Quality Manager  
 Address 700 Alexandria Pike  
 City, State & Zip Ft. Thomas KY 41075  
 Phone & Fax 859-441-0482 859-441-1863  
 Email wagner@nkwater.org  
 Web Page \_\_\_\_\_

**II. General Course Information**

A. Title ORSANCO River Education Center Tour

B. Location & Date/s Covington, KY 9/13/05

C. Cost per Student or Group \$ No Charge

D. Delivery Format or Media (Check those that apply):

- Classroom  Web/Online  Laboratory  Exhibition  
 Field  CD-ROM  Video/Audio  Correspondence  
 Other (Explain) \_\_\_\_\_

E. Continuing Education Credits (hours) Requested for Target Audience:

Drinking Water Treatment Operator Hours	<u>2</u>
Drinking Water Distribution Operator Hours	<u>2</u>
Total DW Hours (if for both treatment and distribution)	<u>2</u>
Wastewater Treatment &/or Collection Operator Non-process Control Hours	<u>2</u>
Wastewater Treatment Operators Process Control Hours	<u>2</u>

**III. Required Items (must be attached to submittal, check off as completed)**

- A.  Course Learning Objectives  
 B.  Criteria for Successful Completion by Operators  
 C.  Agenda (Timed with instructors identified & brief description of topics)  
 D.  Credentials for all Instructors

**IV. Additional Attachments (required for distance learning courses, optional for other training)**

- A.  Instructional Design (Developed by whom / their credentials)  
 B.  Curriculum Content (Subject matter experts / their credentials)  
 C.  Needs Analysis of Participants (Designed by whom / methods / results)  
 D.  Field Testing of Course (Developed & conducted by whom / audience / results)  
 E.  Ongoing Course Evaluation (Methods for feedback & assessment / results to date)  
 F.  Support Available to Participants (instructions / validation of content / references)  
 G.  List of colleges, universities, regulatory agencies, etc. that have awarded credits for the course (provide semester hours and/or continuing education awarded).  
 H.  Required Assignments &/or Examinations (type, passing score, etc.)  
 I.  Mandatory Time Constraints (deadlines, granting of extensions, etc.)  
 J.  Documentation of Results to Students (copy of certificate, letter, etc.)  
 K.  Security Procedures (Operator identification, tracking of hours, exam proctors, etc.)

**V. Signature of Sponsor's Contact Person**

I confirm that all information provided with this application is accurate to the best of my knowledge. A complete list of attendees and credits to be awarded to them will be forwarded on a "Continuing Education Activity Report" to the Kentucky Division of Water (within 30 days of completing the course when possible).

Printed Name & Title Mary Carol Wagner Water Quality Manager  
Signature & Date Mary Carol Wagner 8/8/05

\*\*\*\*\*

**For Division of Water Use Only**

Evaluated by:

Drinking Water Board                      Date \_\_\_\_\_  
 Wastewater Board                              Date \_\_\_\_\_

This course has been approved for the following continuing education credits (hours):  
Drinking Water Treatment Operator Hours \_\_\_\_\_  
Drinking Water Distribution Operator Hours \_\_\_\_\_  
Total DW Hours (if for both treatment and distribution) \_\_\_\_\_  
Wastewater Treatment &/or Collection Non-process Control Hours \_\_\_\_\_  
Wastewater Treatment Process Control Hours \_\_\_\_\_

Consideration of this course has been tabled or denied.

Reason Tabled (additional information needed)

\_\_\_\_\_

Reason Denied

\_\_\_\_\_

Reconsidered by:

Drinking Water Board                      Date \_\_\_\_\_  
 Wastewater Board                              Date \_\_\_\_\_

Results of Reconsideration (Provide narrative here and update cells above):

\_\_\_\_\_

## **ORSANCO River Education Center Tour**

### **Course Learning Objectives**

Participants will tour the ORSANCO River Education Center, a historic paddlewheel boat that has been converted into a floating classroom for high school students in the Cincinnati area. The ORSANCO River Education Center is part of a unique, Ohio River-based curriculum that has been designed by the ORSANCO Educational Foundation. The focal point of the curriculum is a four hour voyage aboard the ORSANCO River Education Center where students will solve a simulated pollution situation. Students will use scientific equipment to measure water quality, and will explore other scientific concepts including biological indicators, land use/watersheds, point and non-point source pollution, weather, and navigation. Students will also use mapping and graphing programs to generate and compile data.

### **Agenda**

9:00 – 9:15 – Heather Mayfield -- The ORSANCO River Education Center tour will include a short presentation about the Floating Classroom Curriculum and the ORSANCO Educational Foundation.  
9:15 – 11:00 –On- Board Educators-- After the presentation, participants will have the opportunity to visit each of four stations that have been set up on the boat and to sample some of the many activities that are featured during ORSANCO River Education Center student voyages.

Operators must be present at all the presentations to obtain credit.

### **Credentials for Instructors**

#### **Program Coordinator**

Heather Mayfield is the Program Coordinator for the ORSANCO River Education Center and will be conducting a short presentation about the program during the tour. She is a graduate of Northern Kentucky University. Heather directed a volunteer stream monitoring program for the Sierra Club Water Sentinels Program before coming to ORSANCO in August 2004.

#### **On-Board Educators**

There will be four on-board educators on-hand during the ORSANCO River Education Center tour. The educators are assigned to one of four stations aboard the ORSANCO River Education Center. During student voyages, each educator guides students through numerous activities designed to solve a simulated pollution situation. Each educator is required to be a graduate or a student pursuing a natural science major, and to have prior experience in water quality and/or biological monitoring.



# ORSANCO River Education Center

## At the Confluence of Learning and Exploring

In *Life on the Mississippi*, Mark Twain wrote, "The people fasten their eyes upon the coming boat as a wonder they are seeing for the first time." The ORSANCO River Education Center seeks to inspire this sense of wonder and awe in all who take part in the journey.

The ORSANCO River Education Center will travel the entire length of the Ohio River, offering educational opportunities, including activities designed to help students learn about water quality issues of the Ohio River, the history of the region, and careers associated with this amazing resource.

According to Alfred Mercier, "what we learn with pleasure, we never forget." Our most memorable experiences involve our emotions. A learning experience in which students emotionally connect with a close-to-home resource -- the Ohio River -- while learning key scientific concepts, increases their ability to make lasting connections. This is the foundation on which they will build knowledge. From that knowledge, students will draw information to make future decisions about the environment.

The floating classroom offers a unique opportunity for students to experience the Ohio River with pleasure, so they never forget its value.

## PROGRAM GOALS

- Promote environmental stewardship
- Provide opportunities for environmental education
- Develop river awareness
- Engage students by solving "real-world" problems
- Encourage students to spur their community into action to solve local water quality issues

## PROGRAM OVERVIEW

### Location

- The floating classroom was fashioned from an historic stern-wheeler and will travel the length of the Ohio River from Pennsylvania to Illinois.

- Students learn through real-world, problem-based situations.

The program meets state and national standards for science, mathematics, and language arts. In addition, workshops provide professional development opportunities for teachers.

### Lasting Impact

- The community outreach program enables students to involve their community in an action project to improve their local resource.



To obtain more information contact ORSANCO at [Info@orsanco.org](mailto:Info@orsanco.org) or call the River Education Center Program Coordinator at 513-231-7719

<http://OEF.orsanco.org>



## Why Should You Support this Program?

### Environmental Stewardship

The Floating Classroom provides an opportunity to educate children and adults about water quality issues and the Ohio River, teaching skills that enable them to solve environmental problems in their community.

### Science Education

Through hands-on, problem-based simulations, students learn important scientific concepts while developing an appreciation for this local resource.

### Workforce Development

Students are educated about science and river-related careers, and become more informed about the job opportunities on the river.

### Publicity

The floating classroom will travel the length of the river, from Pennsylvania to the Mississippi River. Sponsors supporting the floating classroom are publicly recognized through media relations, publicity events, and signage on the boat.



## Support the Floating Classroom

The ORSANCO Educational Foundation was formed by the Ohio River Valley Water Sanitation Commission (ORSANCO). ORSANCO is an interstate agency formed in 1948 to control and abate water pollution in the Ohio River Basin. ORSANCO represents the federal government and eight member states, including Indiana, Illinois, Kentucky, New York, Ohio, Pennsylvania, Virginia, and West Virginia. ORSANCO formed the Foundation to provide support for its educational activities, including a floating classroom for the Ohio River. The foundation is a 501c3, non profit organization.

We extend a special thanks to the L & L Nippert Foundation, the Ohio Environmental Education Foundation (OEEF), and RB Riverboats for making this floating classroom dream a reality. With continued support from sponsors, Friends of the Ohio memberships, as well as monetary and in-kind donations, we can continue working to restore the awe inspired view of the Ohio River that is a part of our region's heritage. Please contact the ORSANCO Educational Foundation to find out how you can help.



## Program Description

### Pre-voyage activities

Prior to the voyage, teachers receive a packet of activities designed to prepare students for concepts such as water quality and watersheds, discussed on boat. Materials required to complete these activities are provided in the Stream Savers Chest, a curriculum kit teachers borrow prior to the voyage.

### On-board simulation

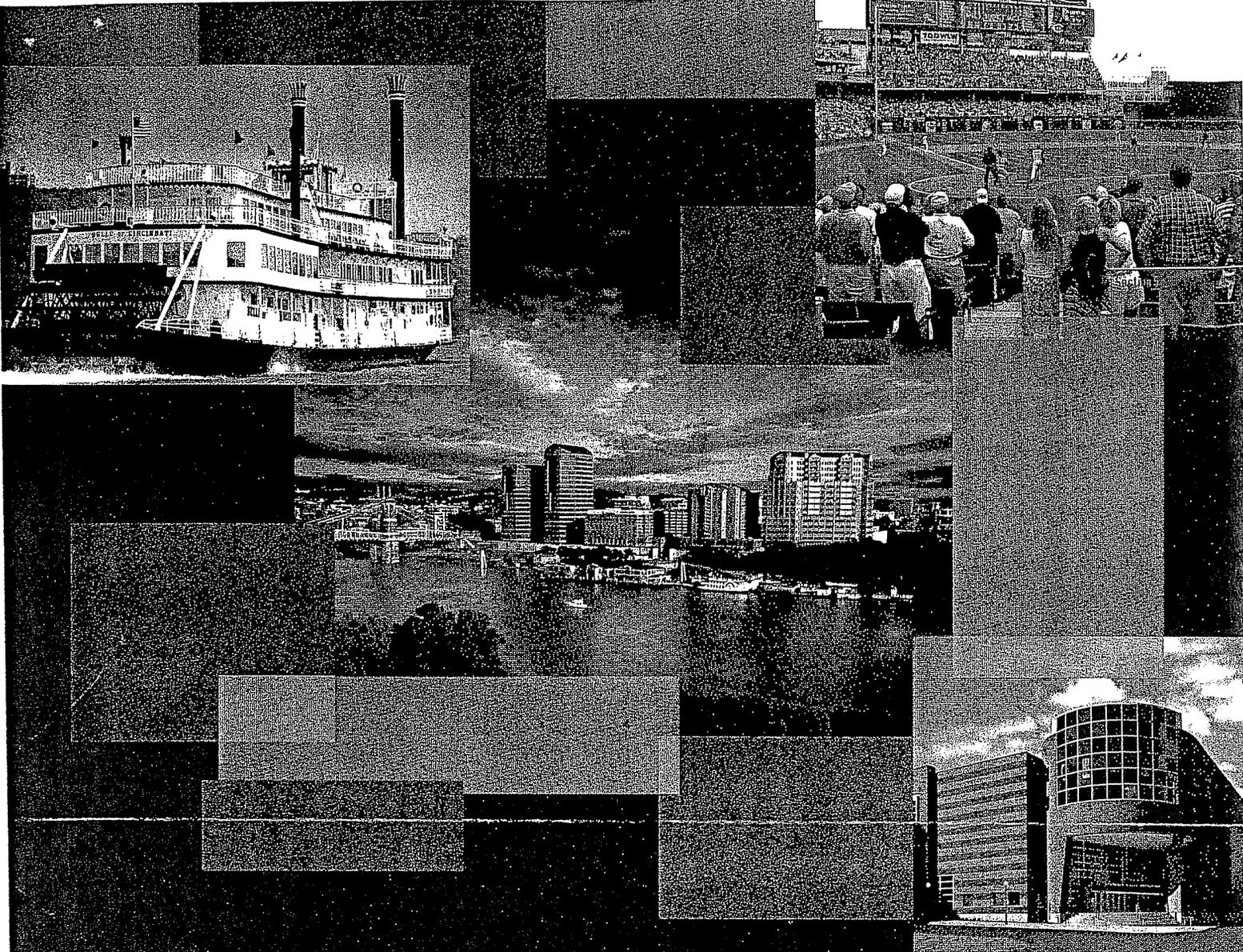
During a day-long voyage on the floating classroom, students take the information learned during pre-voyage activities and apply it to solve a real world problem. The floating classroom consists of four stations. Using a variety of scientific equipment, students measure water quality, look at the watershed, discuss navigation and weather, and investigate how living organisms can be used to measure water quality.

### Post-voyage activities

Following the day-long voyage aboard the floating classroom, students return to their own classroom and reflect on their experience while synthesizing the data collected. In groups students will discuss their findings, summarize this information in a report, and develop a presentation to share with the class.

### Community Action Project

Students relate their findings to pre voyage activities as well as local water quality issues, designing a plan of action to remedy a local problem.



# Water

**Professionals  
Conference**



**September 11 - 14, 2005**

**Northern Kentucky**

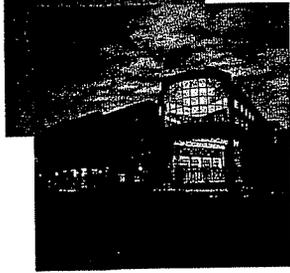
**Convention Center**

**Covington, Kentucky**

# Conference Registration

# 2005 Water Professionals Conference

## ABOUT THE CONFERENCE



For the second consecutive year, KY/TN AWWA and KY/TN WEA are joining forces to present an annual conference for water and wastewater professionals. The conference will be held September 11 - 14, 2005 at the Northern Kentucky Convention Center. It is designed to provide the

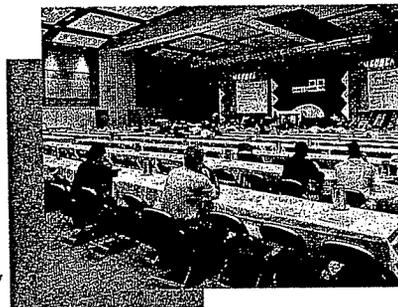
most up-to-date technical information regarding the water and wastewater industries.

### WPC 2005 offers:

- ★ A wide range of technical sessions and workshops covering drinking water, wastewater, water resources, and related management and regulatory issues.
- ★ An exposition for companies to exhibit the latest water and wastewater products and services and meet with potential customers from across the region.
- ★ A forum for networking with professional colleagues from Kentucky, Tennessee, Ohio and Indiana to share experiences and knowledge.

## REGISTRATION FEES

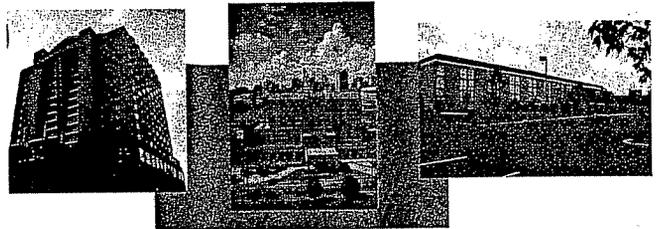
Each Full Conference Registration includes all breakfasts, lunches, meet and greets, technical sessions, exhibit hall access, tours and a ticket to the Member Celebration. Full Conference Registration for KY/TN AWWA and KY/TN WEA members is \$320 on or before August 21 and \$370 after August 21. Non-member Full Conference Registration is \$370 on or before August 21 and \$420 after August 21. One Day Only Registrations are also available at a cost of \$180. Monday only registrations include: breakfast, lunch, technical sessions, exhibit hall access, and the Meet and Greet. Tuesday only registrations include: breakfast, lunch, technical sessions, exhibit hall access, and tours. Additional pricing information can be found on the enclosed Conference Registration Form.



Cancellations received August 21 thru September 1, 2005 will be refunded 25% of their registration costs. No refunds will be provided for cancellations received after September 1, 2005.

## HOTEL INFORMATION

Blocks of rooms have been reserved at the Marriott RiverCenter at \$135.00 per night, the Embassy Suites RiverCenter at \$135.00 per night and the Holiday Inn Riverfront at \$92.00 per night. To reserve rooms on-line, visit [www.kytnawwa.org](http://www.kytnawwa.org) or [www.kytnwea.com](http://www.kytnwea.com). To make reservations by phone, contact Carla Quercioli, Northern Kentucky Convention and Visitors Bureau, at 1-800-447-8489. To take advantage of the conference rates, please book reservations by August 21, 2005. After that date, the room blocks will be released and hotels may charge higher rates.



## TECHNICAL SESSIONS

Be sure to attend this year's technical sessions scheduled for Monday, Tuesday and Wednesday. Fellow water and wastewater professionals will be providing us with current information relating to regulatory issues, customer service, water and wastewater infrastructure, and common management topics. For more information, refer to the enclosed schedule of technical sessions.

## OPERATOR TRAINING

On Monday, September 12, WPC is offering a 6-hour operator training course on "How to Build a Better Operator." As the number of certification preparatory courses are being reduced, basic water and wastewater information must be provided for operators unable to attend such training. In addition, current operators may need to hone their skills as environmental regulations get tighter and treatment technologies become more complex. This is an excellent opportunity to improve operator skills through formal training and interaction with peers.

***Dress for all WPC Conference events is business casual. Questions? Please contact Kay Sanborn at 502-550-2992 or [executivedirector@kytnawwa.org](mailto:executivedirector@kytnawwa.org) or Jim Deming at 615-354-1055 or [jimdeming@comcast.net](mailto:jimdeming@comcast.net).***

# September 11 - 14, 2005

# Northern Kentucky Convention Center

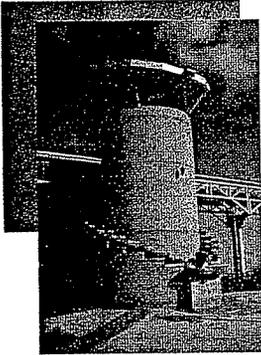
## TOURS

Tuesday, September 13, take some time out of your busy schedule to take part in the following tours:

### A Floating Classroom

9:00 am - 11:00 am

Climb on board the PA Denny, ORSANCO's River Education Center - it's just a short walk from the Convention Center! This facility is designed to travel the entire length of the Ohio River, offering educational opportunities, including activities designed to help students learn about water quality issues of the Ohio River, the history of the region, and careers associated with this amazing resource. Don't miss the opportunity to tour this unique floating classroom and learn about ORSANCO's efforts to promote environmental stewardship.



### Controlling Storm Water & Fighting Fires

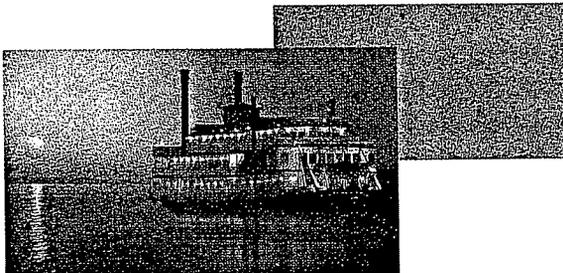
11:00 am - 4:00 pm

Take a trip to visit Sanitation District No. 1's new Public Service Park featuring various innovative storm water controls. Experience first-hand a vegetated rooftop, a man-made wetland, drainage swales, porous pavement, an oil/water separator, and much more! Lunch will be provided.

Following lunch, you will travel to the Greater Cincinnati/Northern Kentucky International Airport to watch their highly-trained firefighters in action. Register early - space is limited!

## MEMBER CELEBRATION

All Aboard! Join us on Tuesday, September 13 for Monte Carlo on the River, WPC's Member Celebration. Festivities begin at 6:00 pm on B&B Riverboat's Belle of Cincinnati. Additional tickets cost \$50 each.



## SPOUSE/GUEST PROGRAM

Spouses and guests - join us for a day of wine tasting and riverboat gambling! On Tuesday, September 13, spouses and guests are invited to join us for a private tour of the Chateau Pomije Winery including wine tasting and lunch. The winery was established in 1973 and produces over 10,000 cases of wine each year.

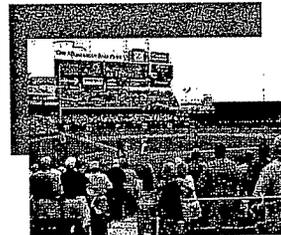
After lunch we're off to the Argosy Casino, riverboat gambling at its best! Visit all three decks, each larger than a football field. Play one of their 2,300 slot machines or take a seat at one of their 80 table games. Show me the money!



## CINCINNATI REDS VS.

### PITTSBURGH PIRATES

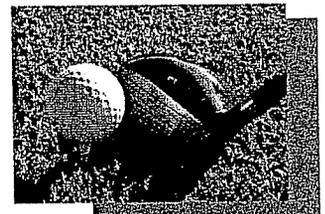
And this one belongs to the Reds! Sunday, September 11 at 1:15 p.m., watch the Cincinnati Reds take on the Pittsburgh Pirates.



A limited number of seats have been reserved at a cost of \$20 each. To purchase your tickets, contact Lori Simpson at the Northern Kentucky Water District, 859-578-9898 ext. 3226. Call now!

## WATER FOR PEOPLE GOLF TOURNAMENT

Your support of the 2nd Annual WPC Golf Tournament benefits Water For People, an organization that helps the most impoverished people worldwide improve their quality of life by supporting sustainable drinking water, sanitation and hygiene projects.



**Wednesday, September 14**

**Boone Links Golf Course, Florence, Kentucky**

**Shotgun Start at 9:00 am**

**Four Person Scramble**

**Hole-in-One Prize ~ BMW Z4 Roadster**

**\$80 Per Person or \$320 Per Team**

*To register, please use the separate Golf Tournament Registration Form enclosed in this packet.*

**Don't Miss It!**



P.O. Box 22788  
Louisville, KY 40252-0788

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Permit No. 1498



\*\*\*\*\*AUTO\*\*ALL FOR AADC 403

Julie Roney 20  
Kentucky Division of Water  
720 Wellington Way  
Lexington KY 40503-2736

# Join us in Northern Kentucky for the 2005 Water Professionals Conference!

## CONFERENCE AT A GLANCE

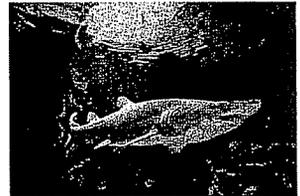
### Sunday, September 11

Cincinnati Reds vs. Pittsburgh Pirates  
Registration  
Meet and Greet



### Monday, September 12

Registration  
Awards Breakfast & Lunch  
Exhibit Set-Up and Exhibition  
Technical Sessions & Operator Training  
Top Ops Competition  
Tapping Contest



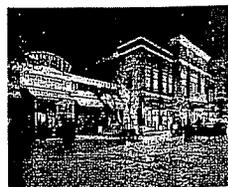
### Tuesday, September 13

Registration  
Awards Breakfast  
Exhibition  
Hot Buffet Lunch in Exhibit Hall  
Technical Sessions  
Tour of ORSANCO's River Education Center  
Live Demonstration of Airport Firefighting  
Spouses' Program  
Member Celebration Monte Carlo on the River



### Wednesday, September 14

Registration  
Technical Sessions  
Golf Tournament



# Conference Registration

2005 KY/TN Water Professionals Conference

September 11-14, Nashville Kentucky Convention Center

TIME	SUNDAY 9/11/05	MONDAY 9/12/05	TUESDAY 9/13/05	WEDNESDAY 9/14/05
7:00 AM	AWWA Life Membership	AWWA Breakfast (Continental)	AWWA Breakfast (Hot Buffet)	AWWA Board Meeting
7:15 AM	AWWA Life Membership	AWWA Breakfast (Continental)	AWWA Breakfast (Hot Buffet)	AWWA Board Meeting
7:30 AM	AWWA Life Membership	AWWA Breakfast (Continental)	AWWA Breakfast (Hot Buffet)	AWWA Board Meeting
7:45 AM	WEF Quarter Century	AWWA Breakfast (Continental)	AWWA Breakfast (Hot Buffet)	AWWA Board Meeting
8:00 AM	AWWA CS	AWWA CS	AWWA CS	AWWA Board Meeting
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9:00 PM	AWWA CS	AWWA CS	AWWA CS	AWWA Board Meeting

TIME	September 12, 2005	MONDAY—Session A/Room 1 <b>Water</b>
	<b>Morning Session Sponsor: GEL Laboratories</b>	
9:00 -10:30	Donna Marlin Robert Foster	State Regulatory Update
10:45 – 11:30	David Wilkes	Understanding and Using AWWA Standards
	<b>Afternoon Session Sponsor: JJG Engineering</b>	
1:30- 2:15	Hal Balthrop	Implementation of Metro Water Services Cross Connection Control Program
2:15 – 3:00	Rengao Song	2005 Kentucky River Crude Oil Spill: Experiences and Lessons
<b>3.75 CEU Hours Drinking Water</b>		

TIME	September 12, 2005	MONDAY—Session B/Room 2 <b>Customer Service</b>
9:00- 10:30	Customer Service Committee	Customer Service Roundtable
10:45 – 11:30	Sarah Haidri-Hasan	To Bottle or Not to Bottle: Initiating A Bottled Water Operation
1:30 – 2:15	Christopher Cathis	Zinc Metalizing for Potable Water Tanks
2:15 – 3:00	William Dowbiggin	Ultraviolet Disinfection Design and Operation for LPHO and MP Systems
<b>3.75 CEU Hours Drinking Water and 2.25 CEU Hours Wastewater (am only)</b>		

TIME	September 12, 2005	MONDAY—Session C/Room 3 <b>Wastewater</b>
9:00 – 9:45	Tom Brankamp	The Power of People
9:45 – 10:30	James Koontz	CMOM: Bringing Order to the Data
10: 45 – 11:30	Gil Everett	Dynamic Modeling Using the Eckenfelder Activated Sludge Equations
1:30 – 2:15	Jeff Allen	Where is USEPA’s Pretreatment Program?
2:15 – 3:00	Jeff McBride	Full-Scale Operational Experience with Two Different IFAS Technologies at the Feiselbullach WWTP, Germany
<b>3.75 CEU Hours Wastewater</b>		

TIME	September 12, 2005	MONDAY—Drinking Water Operator Training/Room 5
		<b>Drinking Water</b>
8:00 – 9:00	Fleming Training Center	Coagulation, Flocculation and Sedimentation
9:00 – 10:00	Fleming Training Center	Coagulation, Flocculation and Sedimentation (continued)
10:15 – 11:15	Fleming Training Center	Filtration and Disinfection
11:15 – 12:15	Fleming Training Center	Lab Procedures
12:15	LUNCH	
1:45 – 2:45	KY Division of Compliance Assistance	Water Plant Optimization
2:45 – 3:45	KY Division of Compliance Assistance	Distribution System Optimization
<b>6 CEU Hours Drinking Water</b>		

TIME	September 12, 2005	MONDAY—Wastewater Operator Training/Room 6
		<b>Wastewater</b>
8:00 – 9:00	KY Division of Compliance Assistance	Clarifier Optimization
9:00 – 10:00	KY Division of Compliance Assistance	Sludge Dewatering and Disposal
10:15 – 11:15	KY Division of Compliance Assistance	Filamentous Organisms Control
11:15 – 12:15	KY Division of Compliance Assistance	Filamentous Organisms Control
12:15	LUNCH	
1:45 – 2:45	KY Division of Compliance Assistance	Wastewater Biology
2:45 – 3:45	KY Division of Compliance Assistance	Wastewater Math
<b>6 CEU Hours Wastewater</b>		

TIME	September 13, 2005	TUESDAY—Session D/Room 8 <b>Water—Distribution</b>
	<b>Morning Session Sponsored by: Calgon Carbon</b>	
9:00 – 9:45	Richard Mielke	Guide to the Design of Water Transmission Pipelines
9:45 – 10:30	Bryan Fuchs	Greensand Replacement Media: Alternate Solution for Removal of Iron and Manganese—Pilot and Full Scale Data
10:45 – 11:30	Kevin Irby	Developing a Distribution System Model And Water Quality Management Plan Conjointively with Meeting Regulatory Compliance
1:00 – 1:45	Jan Routt	Distribution Disinfection and Supply Changes to Improve Water Quality and Quantity in KAWC's Northern Division
		<b>Engineering</b>
1:45 – 2:30	Patrick Brown	New Tank Construction: A Case Study of Successful Projects
3:00 – 3:45	Nick Winnike	Selecting the Optimum Solution for Retrofitting UV Treatment into a Large WTP
		<b>Young Professionals</b>
3:45- 4:30	Marcus Knight	Young Professionals Panel Discussion: Lessons Learned
<b>5.25 CEU Hours Drinking Water</b>		

TIME	September 13, 2005	TUESDAY—Session E/Room 5 <b>Wastewater</b>
9:00 – 9:45	Gary Cinder	The Oak Ridge Solution of Internal Bypassing at the Wastewater Treatment Plant
9:45 – 10:30	John Schaeffer	The Schaeffer Sludge Elimination System: A New Approach to Biosolids Management
10:45 – 11:30	John Beyke	Creative Solutions to Frankfort Force Main Break

1:00 – 1:45	Alberto Garibi	Selection of On-Site Hypochlorite Generation Equipment for Water Disinfection
1:45 – 2:30	Larry Moore	Water Quality Modeling of the Loosahatchie River
3:00 – 3:45	Scott Hall	Options for Site Specific Discharge Limits
3:45 – 4:30	Felicia Hix	Endocrine Disrupters: A New Concern For Wastewater Treatment
<b>5.25 CEU Hours Wastewater</b>		

TIME	September 13, 2005	TUESDAY—Session F/Room 2 <b>Customer Service</b>
9:00 – 9:45	Eric Ayers	Selecting and Implementing a Mobile Dispatch System
9:45 – 10:30	Aileen Katcher	Clearing the Clog: How to Use Research To Clear the Way for Better Communication
10:45 – 11:30	Ted Niemann	Customer Focus Helps Construct 36” Main through Neighborhood
1:00 – 1:45	Shannon Wray	Improving Customer Satisfaction with EBPP and Bill Print
1:45 – 2:30	Judy King	Benchmarking 101 and Water Utility Business Optimization
3:00 – 3:45	Bob Norton	A Conflict Resolution Tool That Works!
3:45 – 4:30	John Thomas	From Paper to Hard Drive: Keys to Automating Data and GIS Infrastructure for Smaller Utilities
<b>5.25 CEU Hours for both Drinking Water and Wastewater</b>		

TIME	September 13, 2005	TUESDAY—Session G/Room 4 <b>Common Management</b>
9:00 – 9:45	Sieglinde Kinne	Energy Efficiency Assessments and Opportunities

9:45 – 10:30	Sid Sengupta	Basic Considerations in Designing Standby Power Engine-Generation For Water and Wastewater
10:45 – 11:30	Jeff Rose	Update on Water For People Projects With David Tomijanovich
1:00 – 1:45	Paul Calamita	Clean Water and Safe Drinking Water Acts: Programs Collide
1:45 – 2:30	Paul Calamita	Legislative Update
3:00 – 3:45	Stuart Bowns	AWWA Water Loss Committee Continuing Outreach: Writing a New AWWA Publication on Water Loss Control—A Progress Report
3:45 – 4:30	Stephen Street	Confined Space Entry
<b>5.25 CEU Hours for both Drinking Water and Wastewater</b>		

TIME	September 13, 2005	TUESDAY—Session H/Room 1 <b>Water—Water Quality and Production</b>
9:00 – 9:45	Don Adams	Phosphate Technologies: Do They Really Work?
9:45 – 10:30	Bob Borneman	Moving to a New Water Treatment Plant with a Touch of the Past
10:45 – 11:30	James Hamon	Performance-Based Training for Actiflo Water Plants
<b>Afternoon Session Sponsor: JJG Engineering</b>		
1:00 – 1:45	Kim Childress	LT2 Compliance: 24 Months of Monitoring for Cryptosporidium And Giardia at 5 WTP Intakes Along The Duck River Watershed
1:45 – 2:30	Joe Griffey	Initial Distribution System Evaluation: Using a System-Specific Study to Meet IDSE Requirements
3:00 – 3:45	Neal Megonnell	Case Study: Frostburg, MD—A Study of Granular Activated Carbon versus Anthracite for Removal of DBPs, THMs and HAAs

3:45 – 4:30	Timothy Soward	GAC Treatability Study at the NKWD Fort Thomas Plant in Response to the Stage 2 DPBR
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**5.25 CEU Hours Drinking Water**

TIME	September 13, 2005	TUESDAY—Session I/Room 6 Wastewater
9:00 – 9:45	Michael Short	Design of a Biological Nutrient Removal Facility: A Case Study of the Upper Mill Creek Water Reclamation Facility in Butler County, Ohio
9:45 – 10:30	Caroline Scruggs	EDCs in Wastewater
10:45 – 11:30	Brandon Vatter	Practical Applications of a System-Wide Hydraulic Model
1:00 – 1:45	Chang-Ping Yu Farrell	Biodegradation of Estrogen: Estrogen-Degrading Bacteria in Activated Sludge
1:45 – 2:30	W. Wesley Eckenfelder	An Overview of Nitrification/Denitrification
3:00 – 3:45	Michael Fagan	Hydrogen Sulfide Control in Biosolids Processing with H <sub>2</sub> O <sub>2</sub> —The Cedar Rapids Experience
3:45 – 4:30	Angela Akridge	A CSO Solids and Floatables Control Performance Assessment for a Diverse Metro Community

**5.25 CEU Hours Wastewater**

TIME	September 13, 2005	TUESDAY—Session J/Room 7 Water--Distribution
<b>Morning Session Sponsor: National Environmental Contracting, Inc.</b>		
9:00 – 9:45	Robert Campbell	Asbestos Cement Pipe Removal and Replacement Methodology
9:45 – 10:30	Terry Englehardt	Monitoring the Distribution System for Contamination—Technical and Legal Liabilities

**Water Resources**

10:45 – 11:30	Thomas Dumm	Creative Approaches and Tools for Regional Water Supply Planning
1:00 – 1:45	David Haas	<b>Plant Operations</b> Considerations for Retrofit of an Engineered Ceramic Filter Media at the 1 <sup>st</sup> Utility District
1:45 – 2:30	Paul Hargette	Using Multiple Parameters to Evaluate Coagulation Effectiveness
3:00 – 3:45	Samantha Kendrick	Diverse Immersed Ultrafiltration Membrane Solutions for DW Treatment
3:45 – 4:30	Bryan Lovan	Preparing for a New Water Treatment Plant in KY: Low Pressure RO Treatment of Groundwater
<b>5.25 CEU Hours Drinking Water</b>		

TIME	September 13, 2005	TUESDAY—Session K/Room 3 Wastewater
9:00 – 9:45	Mark Boner	Atlanta CSO Filtration and Disinfection Pilot Testing
9:45 – 10:30	Douglas Ralston	West Hickman Creek Single Stage Nitrification/Biological Phosphorus Removal
10:45 – 11:30	James Farmarie	Dissolved Air Flotation for Wastewater Lagoon Effluent
1:00 – 1:45	Deborah Bohot	Membrane Thickeners in Controlled Aerobic Digestion
1:45 – 2:30	Roy Herwig	Let's Be Clear About Developing Our Fog Program
3:00 – 3:45	Robin Fothergill	Sanitary Sewer Wet-Weather Issues: Flow Monitoring and Modeling
3:45 – 4:30	Chris Plott	Tennessee's Municipal MBR Plant: OPS, Issues and First Year Performance
<b>5.25 CEU Hours Wastewater</b>		

TIME	September 14, 2005	WEDNESDAY—Session L/Room 1 & 2 <b>Water—Emergency Response</b>
9:00 – 10:00	Horsley Witten Group	Response Protocol Toolbox Overview
10:00 – 12:00	Horsley Witten Group	Table Top Exercise Demonstration
<b>3 CEU Hours for both Drinking Water and Wastewater</b>		

TIME	September 14, 2005	WEDNESDAY--Session M/Room 3 <b>Wastewater</b>
9:00 – 10:30	Steve Tilson	Benefits of a State Training and Certification Program
10:30 – 12:00	Steve Tilson	Field Operations View Towards Sewer Overflow Mitigation
<b>3 CEU Hours Wastewater</b>		

**TOTAL CEU HOURS REQUESTED (Available to an individual):**

**DRINKING WATER – 14.25 hours (Operator Training on 9/12 plus 9/13 and 9/14 technical session attendance)**

**Monday 6.00 (Operator Training of 6 hours max hours for 9/12)**  
**Tuesday 5.25**  
**Wednesday 3.00**

**WASTEWATER – 14.25 hours (Operator Training on 9/12 plus 9/13 and 9/14 technical session attendance)**

**Monday 6.00 (Operator Training of 6 hours max hours for 9/12)**  
**Tuesday 5.25**  
**Wednesday 3.00**

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# 2005

**water**

**Professionals  
Conference**

Kentucky/  
Tennessee Section  
American Water Works Association

KY  
TN WEA

# OPERATOR TRAINING

**Drinking Water Operator Training**  
**Monday, September 12, 2005**  
**8:00 – 4:00**

Attached are copies of the presentations for the 4 morning sessions to be conducted by the Fleming Training Center of Murfreesboro, TN.

For the afternoon sessions to be conducted by the Operator Certification Section of the KY Division of Compliance Assistance:

Drinking Water Treatment Optimization—This session will take several of the basics taught in the morning classes and expand upon ways to optimize those basics to further improve water treatment and public health protection. Examples of processes that can be optimized include filtration and coagulation.

Drinking Water Distribution System Optimization—As with the previous session, this one will further expand on distribution system basics, focusing on flushing, system maintenance and tank turnover. Optimizing the distribution system results in improved public health through lower chlorine demands and lower disinfection by-products.

**Wastewater Operator Training**  
**Monday, September 12, 2005**  
**8:00 – 4:00**

The 6 sections in the Wastewater Operator Training will focus on the basics of wastewater treatment, covering clarifiers, sludge dewatering, filamentous organisms, biology and math. The intent is to provide participants with an improved understanding of wastewater operation, maintenance and control.

## Coagulation, Flocculation and Sedimentation

### The Need for Coagulation

- Particles in water are a result of soil erosion, decay of plant material, industrial contamination, animal wastes, pickup of minerals, etc.
- Surface water usually has a lot of suspended and dissolved matter.
- These solids must be removed to ensure that the water is safe for consumption.
- The coag/floc process facilitates the removal of small, nonsettleable solids.

### Conventional Treatment

Involves four processes:

Coagulation

Flocculation

Sedimentation

Filtration

### Effective Process

- The effectiveness of the sedimentation and filtration processes depend on the success of the coagulation and flocculation processes.
- Disinfection can also be affected by the coagulation and flocculation processes.

### Process Description

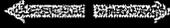
- Nonsettleable solids are converted into heavier settleable solids by the addition of a coagulant
- Zeta potential - natural forces which keep particles from sticking together
- Suspended matter is likely to contain microbes which are resistant to chlorine

### Nonsettleable Solids

- Suspended solids - particles held in suspension by velocity of water
- Colloidal solids - particles that will not settle within a reasonable amount of time - these particles make up turbidity; fine silts, bacteria, color-causing particles and viruses are examples of these solids
- Dissolved solids - cannot be removed unless precipitated

## Natural Forces Between Particles

- Zeta potential - negative charge on particles; repel each other



- Van der Waals force - attraction between particles, pulling them together



- particles will stay in suspension if Zeta potential is greater than the Van der Waals force

## Coagulation & Flocculation

- Coagulation reduces zeta potential so that van der Waals force can pull particles together to form microfloc.
- The flocculation process brings these microfloc particles together to form larger particles called macrofloc.

## Coagulants

- Coagulants - positively charged chemicals that neutralize negatively charged particles in water to promote coagulation
  - Alum (aluminum sulfate)
  - Ferric Chloride
  - Ferric Sulfate
  - Polyaluminum chlorides

## Alum

- $Al_2(SO_4)_3 \cdot 14 H_2O$  - most widely used coagulant, available as liquid or dry
- Reacts with alkalinity in water to form  $Al(OH)_3$
- Works best in pH range of 5.8 to 8.5 w/ sufficient alkalinity
  - liquid alum - strong acid, pH less than 4
  - dry alum - available in powder, lump form
- About 0.5 mg/L of alkalinity is required for each mg/L of alum added

## Ferric Chloride

- $FeCl_3$  - highly corrosive, liquid is 35 - 45% strength, will crystallize at 30°F
- Effective over wider pH range than alum, works better in cold water, forms heavier, denser floc
- Requires 0.6 mg/L alkalinity for each mg/L ferric chloride
- Reacts with alkalinity in the water to form an insoluble hydroxide  $Fe(OH)_3$

## Ferric Sulfate

- $Fe_2(SO_4)_3 \cdot 3 H_2O$  or  $Fe(SO_4)_2 \cdot 2 H_2O$  - used often with lime softening
- Effective over wider pH range than alum, produces heavier, denser floc
- Requires 0.75 mg/L alkalinity for each mg/L ferric sulfate
- Reacts with alkalinity in the water to form an insoluble hydroxide  $Fe(OH)_3$

## Polyaluminum Chlorides

- Polyaluminum chlorides are relatively new to water industry
- Usually require less chemical to achieve coagulation
- Have some characteristics of polymers

## ALKALINITY CONCERNS

- All coagulants require alkalinity. If there is insufficient alkalinity, effective floc will not form.
- If the alkalinity is increased in the distribution system, the floc may form then, causing sediment buildup and customer complaints.

## Coagulant Aids

- Polymers may be added to:
  - build stronger, more settleable floc
  - decrease amount of primary coagulant needed
  - reduce amount of sludge produced
    - cationic - positive charge
    - anionic - negative charge
    - nonionic - neutral charge

## Polymers

- Advantages:
  - Have little effect on pH
  - May help with very cold water with low turbidity
  - produce less sludge
- Disadvantages
  - Overfeed can clog filters
  - Spills are very slick, difficult to clean up

## pH and Alkalinity Adjustment

- Increase alkalinity by adding:
  - lime
  - sodium bicarbonate
  - soda ash
  - caustic soda
- A minimum of 10 mg/L alkalinity should be maintained to prevent reformation of floc in distribution system

## Chemical Storage and Handling

- Dry chemicals should always be kept dry and well ventilated to prevent caking
- Liquid chemicals should be kept from freezing, stored in proper tanks, follow safety precautions when handling
- All storage areas must be kept clean
- Wear protective equipment when handling dry chemicals
  - Dust mask
  - Protective clothing

## Chemical Feed Equipment

- Dry chemicals feeders
  - volumetric
  - gravimetric
- Chemicals must be in solution before added to the water, they require sufficient agitation and time
- Solution feeders - liquid pumped from day tank
  - Metering pump - positive displacement pump that delivers a precise volume
  - Peristaltic pump - roller mechanism pulls chemical through flexible hose

## Flash Mixers

- Flash mixers (rapid mixers) - provide agitation to evenly mix coagulant through water
- Add chemicals to center of mixing chamber
- Coagulation occurs in less than 1 second
- This stage determines the success of coagulation
- Types:
  - mechanical mixers
  - static mixers
  - pumps and conduits
  - baffled chambers
- Detention time should not exceed 30 seconds (Design Criteria)

## Flocculation

- Follows coagulation, provides gentle agitation to build floc
- Mixing energy must be low so floc will not be sheared
- Floc should not be allowed to settle in floc basin
- DT must be at least 30 minutes, with 45 minutes recommended (Design Criteria)

## Flocculation Basins

- Can be designed for reduction in velocity gradient as water moves through
- Must have at least 2 basins
- Velocity should be between 0.5 and 1.5 ft/sec

## Operation of Process

- Consider water characteristics affecting the selection of chemicals to be used
- Apply chemicals
- Monitor effectiveness

## Enhanced Coagulation

- Adjust process to remove TOC, DBP precursors for compliance with IESWTR (Interim Enhanced Surface Water Treatment Rule)
- Adjust pH for maximum TOC removal
- Iron salts better at removing TOC than other coagulants

## Water Characteristics Affecting Chemical Selection

turbidity      pH      alkalinity  
color                      temperature

- ◊ As water quality changes, coagulant effectiveness changes

## Water Characteristics Affecting Chemical Selection

- ◊ Turbidity
  - floc doesn't form well when turbidity is low
  - may have to add weighting agent
  - coagulant dose must be raised when turbidity increases
  - don't lower coagulant dose too soon when turbidity starts to drop

## Water Characteristics Affecting Chemical Selection

- ◊ pH
  - Optimal range for each chemical
  - Lime, soda ash, caustic soda raise pH
  - Sulfuric acid lowers pH
- ◊ Alkalinity
  - At least 10 mg/L left over

## Water Characteristics Affecting Chemical Selection

- ◊ Water temperature
  - Reactions occur slower in colder water
  - Requires more coagulant in cold water
- ◊ Color
  - Caused by organics, such as humic acid
  - Highly colored water is often low in turbidity
  - Usually also has low alkalinity

Color removal is an increasing concern because there seems to be a link between color-causing substances (organics) and THM formation when chlorine is added

## Choosing a Coagulant

- ◊ Jar test :
  - dose                      - mixing speed                      - chemical combination
- ◊ Full-scale plant operation may not match jar test results
- ◊ Indication of improper flash mixing, coag/floc:
  - pinpoint floc                      - high settled turbidity                      - frequent filter backwash

## Control Tests

- ◊ Jar test - allow you to test different chemicals or dosages before you try them in your plant
- ◊ pH - ensure proper pH range for coag/floc process
- ◊ Turbidity (finished) - overall process success
- ◊ Turbidity (settled) - success of sedimentation process
- ◊ Zeta potential meter - measures charge of water
- ◊ Streaming current monitor - measures overall charge after coagulant is added
- ◊ Particle counter - measures size and concentration of particles in finished water

## Control Tests

- Visual inspection of floc in floc basins
  - size and distribution of floc
- Visual inspection of how floc settles in sedimentation basin
  - little or no carryover into weirs
- Calibrate feeder equipment at least once per shift
- Use in-line monitors to measure water quality

## Operating Problems

- Common operating problems:
  - low water temp - as temp drops, water becomes more viscous, techniques to overcome
    - operate near optimal pH, increase coagulant dose, add weighting agent or coagulant aid
  - weak floc - passes through filters
  - slow floc formation - often caused by low turbidity or insufficient alkalinity, add weighting agent or increase alkalinity

## Sedimentation

- Sedimentation is the settling of solids out of suspension due to gravity
- Suspended particles include:
  - clay, silt, particles in natural state
  - particles modified by treatment (floc)
  - precipitates (oxidized Fe & Mn, hardness from lime softening)
- Sedimentation greatly reduces the load on filters

## Sedimentation

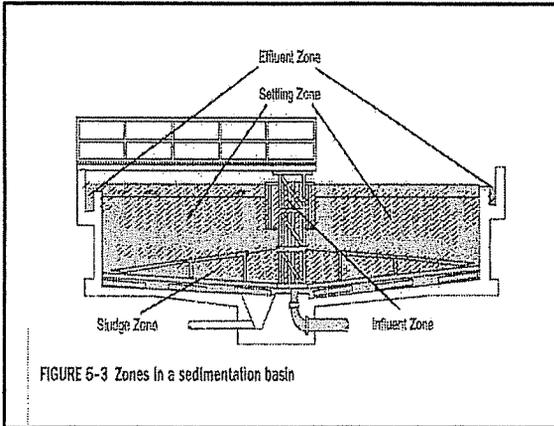
- Sedimentation, or clarification, takes place in a rectangular, square or round basin
- Occurs between flocculation and filtration
- The water flows slowly through the basin with as little turbulence and short-circuiting as possible. The sludge collects at the bottom of the basin

## Basin Zones

- Influent zone (Inlet)
  - Decreases velocity of incoming water from flocculation basin
  - Distributes flow evenly across basin
- Settling zone
  - Largest zone
  - Provides calm area for suspended matter to settle

## Basin Zones

- Effluent zone
  - Provides smooth transition from settling zone to effluent flow area
  - V-notch weirs enable flow to be evenly distributed
- Sludge zone
  - Area where solids collect as they settle



### Parts of a Sedimentation Basin

- Inlet - distributes influent water evenly across or around basin
- Baffle - installed downstream reduces flow velocity
- Effluent trough (launder) - collects settled water as it leaves basin
- Launder is equipped with a weir (V-notch) which distributes flow evenly to trough

### Factors Affecting Sedimentation

- Temperature (density) of water
  - settling rate becomes slower in cold water
  - jar tests should be run to determine best coagulant dose
  - demand for water is often less during cold weather, giving greater detention time to counteract slower settling rate
- Particle size, shape, weight
- Electrical charge on particles
- Environmental factors such as wind
- Basin hydraulics
  - density currents caused by different amounts of suspended solids of different temperatures
  - eddy currents caused by improper design

### Shallow-Depth Sedimentation

- Shallow basins are sometimes used to reduce settling time
- The principle behind these basins is that surface area is more important than depth
- Tube Settlers and Plate Settlers use this theory
  - plates or tubes of fiberglass or steel
  - increase efficiency of conventional sedimentation
  - each tube functions as a shallow settling basin
  - allow a basin to settle a larger flow rate- can be added to existing basins to increase capacity
  - more frequent sludge removal than conventional settling

### Operation of Tube settlers

- Overflow rates are often 2-3 times greater than conventional settling
- Floc must have good settling qualities, may require coagulant aid
- Tube settlers require periodic cleaning

### Sludge Removal

- Sludge buildup problems:
  - If sludge layer is too thick, solids can be re-suspended
  - Decreases depth of settling basin, reduces detention time
  - Can develop taste & odors from decomposing organic matter
- Manual Removal
  - Cleaned once or twice a year using fire hose
  - Basin floors usually sloped toward inlet for sludge removal

## Other Clarification Processes

- Solids-Contact Basins
  - Also called upflow clarifiers, solids-contact clarifiers, sludge-blanket clarifiers
  - Combine coagulation, flocculation, and sedimentation into one basin
  - Usually circular, contain equipment for mixing, flow circulation, and sludge scraping
  - Can be used for clarification or softening
  - Divided by baffles into two zones - mixing and settling
  - Water is "filtered" through sludge blanket
  - Some particles settle to bottom, some are recycled to mixing zone
  - Design Criteria requires a minimum of two units

## Solids-Contact Basin

- Advantages:
  - Chemical reaction takes place quicker because of recycled sludge
  - Allows shorter detention times
  - Less initial cost and space needed
  - When used for softening, chemical requirements may be lower than other processes for softening
- Disadvantages:
  - Require more operator skill to operate
  - Sludge blanket must be maintained
  - Coagulant dose must be more accurate
  - Sludge blanket is sensitive to changes in flow, temperature, turbidity

## Monitoring the Process

- Turbidity test is best way to monitor sedimentation
- Visually checking for floc carry-over
- Visual check of how far floc particles are visible from inlet

## Operating Problems

- Poorly formed floc
  - Doesn't settle properly
  - Improper mixing, dosage, coagulant, or flocculation
  - Jar tests can help
- Short-Circuiting
  - water bypasses normal flow and reaches outlet without proper DT
  - Can't be eliminated; should be minimized
  - Circular and square basins have more short-circuiting than rectangular

## Operating Problems

- Density Currents
  - If influent water is more dense, it will sink to bottom, cause short-circuiting, and stir up sludge
  - Caused by differences in density due to suspended solids or temperature
- Wind effects
  - Wind can create currents in open basins
  - Barrier can be constructed to lessen effect

## Operating Problems

- Algae & Slime Growth
  - Outdoor, uncovered basins - causes tastes & odors
  - Can detach and clog filters or weirs
  - Requires draining basin to remove
  - Can be controlled with a mixture of copper sulfate and lime or other chemicals

## Waste Disposal

- Raw water quality and coagulant used determine amount of sludge produced
- Alum sludge and ferric sludge difficult to dewater
- Sludge pumped to lagoons to dry, may take a year
- Using a polymer as a coagulant aid can reduce amount of sludge produced

## Waste Disposal

- If wastewater plant will accept sludge, it normally doesn't disrupt their process
- Filter backwash water can be combined with sedimentation sludge for disposal
- No longer advisable to recycle backwash water

## Records

- Raw water quality and chemical dose should be recorded for future reference
- Can help operators determine proper dose when water quality changes
- Change only one parameter at a time and document the results
- Document everything you try - doesn't work

## Coagulation Math

Calculating dosages, conversions and feeder settings

## Calculating Pounds/ Day

A water plant treats 5.8 MGD. If the alum dose is 19 mg/L, how many pounds per day of alum will the operator feed?

$$\begin{aligned}\text{Lbs} &= (\text{dose, mg/L})(\text{volume, MG})(8.34 \text{ lb/gal}) \\ &= (19 \text{ mg/L})(5.8 \text{ MG})(8.34 \text{ lb/gal}) \\ &= 919 \text{ lbs/day alum}\end{aligned}$$

## One Step Further

The average flow for a water plant is 12 MGD. Jar tests indicate that the best alum dose is 26 mg/L. What would be the setting in grams per minute?

$$\begin{aligned}\text{Lbs} &= (\text{dose, mg/L})(\text{volume, MG})(8.34 \text{ lb/gal}) \\ &= (26 \text{ mg/L})(12 \text{ MG})(8.34 \text{ lb/gal}) \\ &= 2602 \text{ lbs / day alum}\end{aligned}$$

$$\begin{array}{r} 2602 \text{ lbs / day} \times \frac{454 \text{ grams}}{1 \text{ lb}} \times \frac{1 \text{ day}}{1440 \text{ min}} = 820 \text{ grams / min} \end{array}$$

## Dosage

A water plant used 12 lbs of polymer to treat 0.5 million gallons of water during a 24-hr period. What is the dosage in mg/L?

$$\begin{aligned}\text{Dosage, mg/L} &= \frac{\text{chemical feed, lbs/day}}{(\text{flow, MGD})(8.34 \text{ lb/gal})} \\ &= \frac{12 \text{ lbs}}{(0.5 \text{ MGD})(8.34 \text{ lb/gal})} \\ &= 2.9 \text{ mg/L}\end{aligned}$$

## Dilutions

Liquid polymer is supplied to a water treatment plant as an 8% solution. How many gallons of this would it take to make 55 gallons of a 1% solution?

$$\begin{aligned}(\text{Conc.1})(\text{Vol.1}) &= (\text{Conc.2})(\text{Vol.2}) \\ (.08)(? \text{ gal}) &= (.01)(55 \text{ gal}) \\ ? \text{ gal} &= \frac{(.01)(55 \text{ gal})}{.08} = 6.9 \text{ gal}\end{aligned}$$

## Liquid Feeder Setting

An operator wants to feed 11 mg/L of alum for a flow of 1.2 MGD. The alum contains 643 milligrams of dry chemical per milliliter of liquid. What would be the setting on the liquid alum feeder?

$$\begin{aligned}\text{ml/min} &= \frac{(\text{dose, mg/L})(\text{flow, gpd})(3.785 \text{ L/gal})}{(\text{chem conc.})(1440 \text{ min/day})} \\ &= \frac{(11 \text{ mg/L})(1,200,000 \text{ gpd})(3.785 \text{ L/gal})}{(643 \text{ mg/mL})(1440 \text{ min/day})} \\ &= 54 \text{ ml/min}\end{aligned}$$

## Liquid Feeder Setting

A water plant treats 10 MGD with 25 mg/L liquid alum. How many gallons per day will be used? The alum contains 5.35 lbs dry alum per gallon.

$$\begin{aligned}\text{gal/day} &= \frac{(\text{chem dose})(\text{flow})(8.34 \text{ lbs/gal})}{\text{chem conc., lbs./gal}} \\ &= \frac{(25 \text{ mg/L})(10 \text{ MGD})(8.34 \text{ lbs/gal})}{5.35 \text{ lbs/gal}} \\ &= 390 \text{ gal/day}\end{aligned}$$

## Ferric Chloride

A plant has just switched from alum to ferric chloride. Jar tests indicate that 9.3 mg/L should be fed to treat 5.0 MGD. How many mL/min should be fed if each mL of solution contains 594 mg dry chemical?

$$\begin{aligned}\text{mL/min} &= \frac{(\text{dose, mg/L})(\text{flow, gpd})(3.785 \text{ L/gal})}{(\text{chem conc.})(1440 \text{ min/day})} \\ &= \frac{(9.3 \text{ mg/L})(5,000,000 \text{ gpd})(3.785 \text{ L/gal})}{(594 \text{ mg/mL})(1440 \text{ min/day})} \\ &= 206 \text{ mL/min}\end{aligned}$$

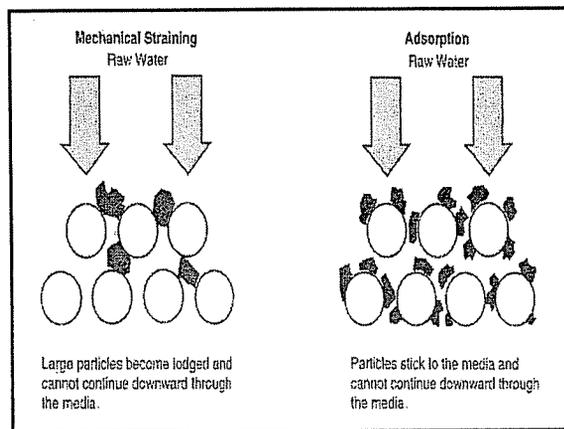
# Questions???

# Filtration

- ## Objectives
- Purpose of filtration
  - Types of filters
  - Operation and maintenance
  - Regulations rearranging filters

- ## Purpose of Filtration
- Removal of particulate impurities and floc
    - Aesthetics - minor reason
    - Main reason - removes microorganisms
  - Water passes through material such as bed of sand, anthracite coal, granular activated carbon (GAC), garnet sand or some combination of these materials
  - Physical and chemical process
  - Groundwater may not require unless iron and manganese removal situations

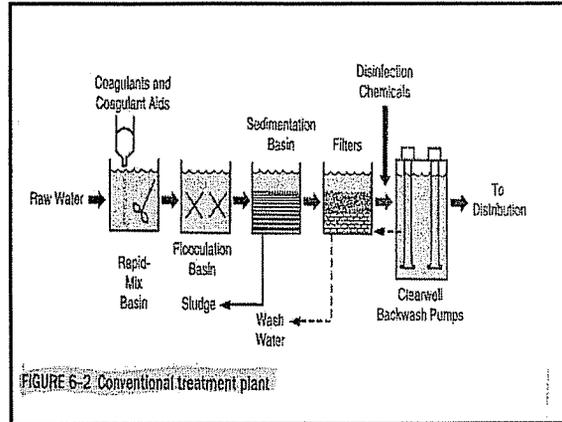
- ## Interrelated Mechanisms Within Filter Media
- Sedimentation on media (very important)
  - Adsorption - stick to surface, adhere
  - Biological action
  - Absorption - penetration of substance into structure of another substance, like a sponge
  - Straining
  - All removal mechanisms depend on nature of water being treated and degree of pretreatment as well as filter characteristics



- ## Types of Filters
- Conventional
  - Direct filtration
  - Gravity
    - Slow sand filters
    - Rapid sand filters
    - High-rate filters
  - Pressure filtration
    - Sand or mixed-media pressure
    - Diatomaceous earth
  - Membrane filters - newer technology

## Conventional Filtration

- Follows complete treatment including coagulation, flocculation, and sedimentation  
 Flocculation critical step building floc  
 Sedimentation removes solids to reduce filter loading
- Can be used with high raw turbidity and changing quality surface waters
- Most widely used



## Direct Filtration

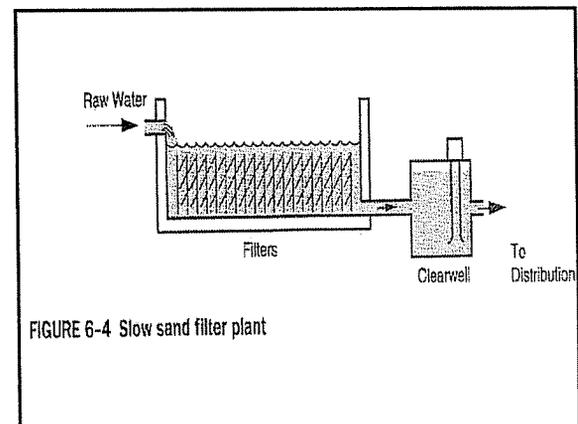
- Sedimentation steps omitted
- Coagulation must occur for solids removal  
 In-line flash mixer and flocculation
- Used with consistently low raw water turbidity  
 Below 25 NTU
- Must be approved by state - case by case basis
- Must have dual or mixed media operated at no more than 2 gpm/ft<sup>2</sup>
- Many direct filtration plants provide rapid mixing, shorter detention times without agitation (30 to 60 minutes) followed by filtration

## Gravity Filters

- Open tanks or basins with filter media, gravel, and underdrain system
- Water flows through by gravity and is collected in underdrain system
- Types of gravity filters:  
 Slow sand filters  
 Rapid sand filters  
 High rate filters

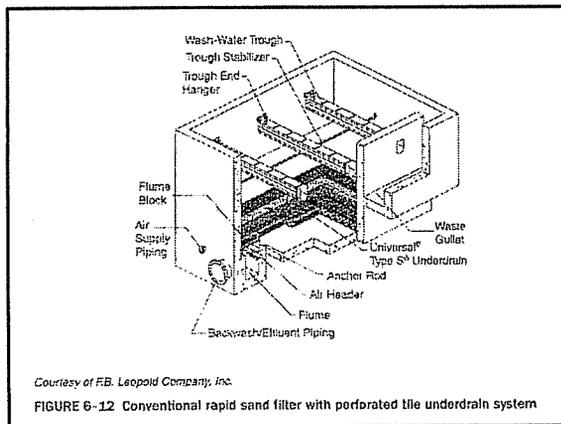
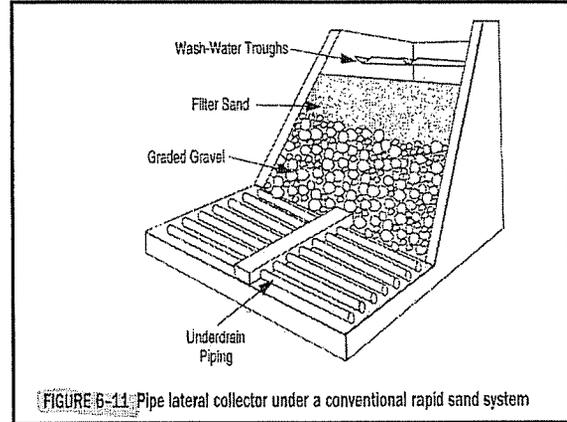
## Slow Sand Filters

- first type used
- have low flow rates
- not backwashed
- huge land area
- not used very often



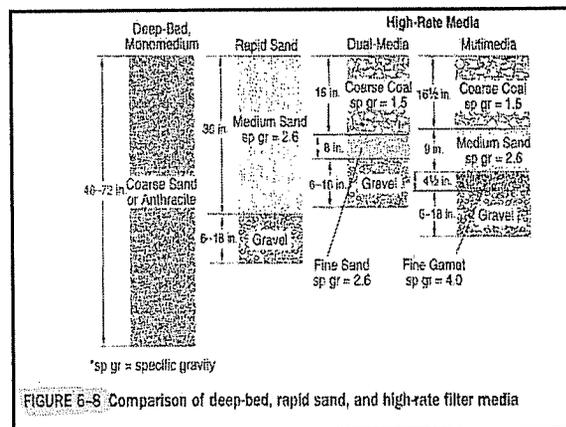
## Rapid Sand Filters

- Back-washed
- Have higher flow rates with sand media only



## High Rate Filters

- Dual media and multi-media
- Filter at 4 times faster rate than rapid sand
- Filter by combination of straining and adsorption



## Equipment Associated With Gravity Filters

- Filter tanks  
generally rectangular
- Filter media  
sand or other media used for filtration
- Wash-water troughs  
collect the backwash water during wash and also carry it to waste

## Equipment Associated With Gravity Filters

### • Underdrain systems

Collect the filtered water uniformly across the bottom of the filter, so that the filtration rate will be uniform across the filter surface.

Distribute the backwash water evenly, so that the filter bed will expand but not be

Types: pipe lateral collectors, perforated tile bottoms, wheeler filter bottoms, porous plate bottoms and false-floor underdrain system

## Filter Control Equipment

- Rapid sand and multimedia filters generally require the following control equipment:

Rate-of-flow controller - maintains a fairly constant flow through the filter so that flow surges do not occur.

Loss-of-head indicators - monitor the status of resistance to flow in the filter as suspended matter builds up in the media.

Online Turbidimeters - if the filter effluent is continuously monitored, the filter can be backwashed as soon as the breakthrough starts.

## Terms & Concepts

- Head loss
- Terminal head loss
- Piezometer
- Air binding
- Surface wash versus air scouring
- Polymer (anionic, cationic, nonionic)

## Backwashing

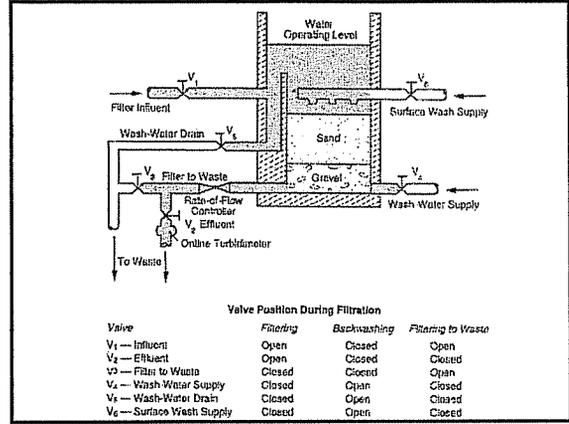
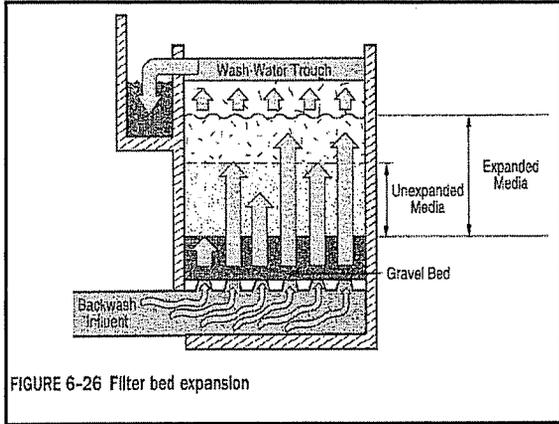
- Solids trapped by adsorption and straining
- Solids clog openings through the filter and head loss increases
- Breakthrough of turbidity can occur
- Terminal head loss occurs at 8 feet
- Backwash rate max of 15-20 gpm/ft<sup>2</sup>

## Backwashing

- If rate too high, may lose expensive media
- If rate too low, filter will not be effectively cleaned
- Media grains separate and expand 50% as solids are flushed out
- Air scour in lieu of surface wash becoming popular

## Backwashing

- Backwash water must be piped to waste
- Only finished water to be used for backwashing
- Water supply required for at 15 minutes
- Rewash cycle for at least 5 minutes

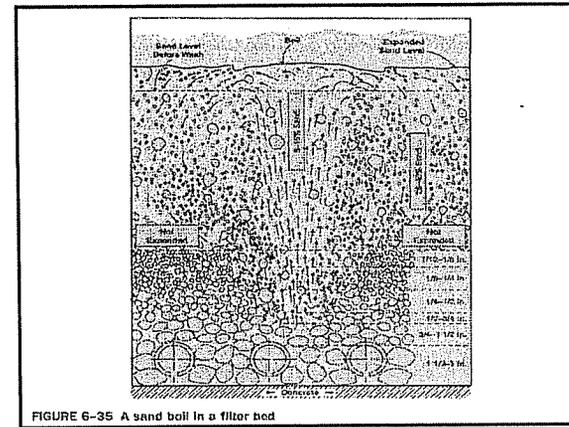
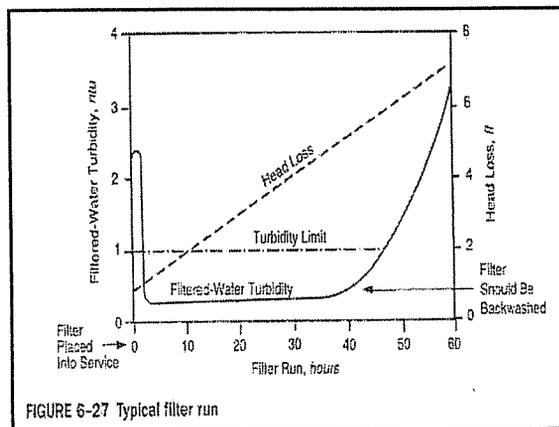


### Indicators of Abnormal Conditions of Filters

- Mudballs in media
- Media cracked or shrinkage
- Media boils during backwash
- Excessive media loss or visible disturbance
- Short filter runs

### Indicators of Abnormal Conditions of Filters

- Filters that will not come clean during backwash
- Algae on walls and media
- Rapid head loss
- Air binding
- Turbidity breakthrough
- Turbidity remains high after rewash

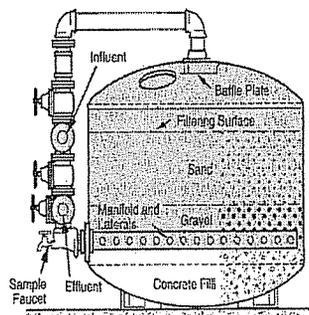


## Sand or Mixed-media Pressure Filters

- Similar to gravity sand filter
- Filter is completely enclosed in a cylindrical steel tank, horizontal or vertical
- Operated under pressure
- Same media as gravity filters  
anthracite and sand

## Sand or Mixed-media Pressure Filters

- May be installed with an auto backwash
- Principle disadvantage: filter bed can not be observed during operation
- Max rates of filtration are in the 2-3 gpm/ft<sup>2</sup> range
- Lower installation and operation costs in small plants
- Schmutzdecke characteristic of sand filters



Courtesy of Celite Corporation

FIGURE 6-37 Vertical sand pressure filter tank

## Diatomaceous Earth Filters (Precoat Filters)

- Used by some small systems
- Extensively used to filter swimming pool water
- Can be operated under pressure or vacuum
- May be installed vertically or horizontally
- Media is skeletal remains of diatoms – microscopic aquatic plants – almost pure silica
- Primarily a straining process

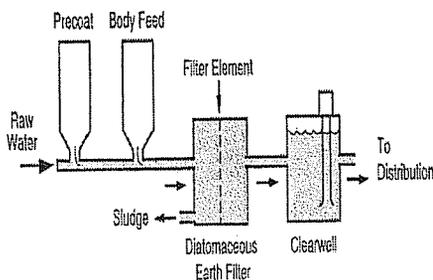
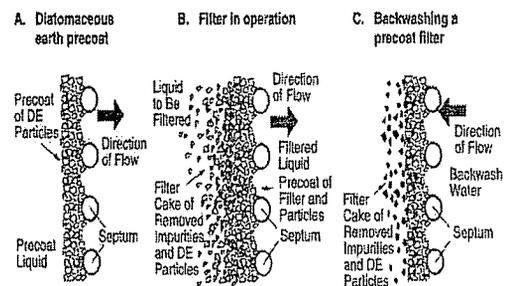


FIGURE 6-5 Diatomaceous earth filter plant



Courtesy of Celite Corporation

FIGURE 6-39 Operation of a diatomaceous earth filter



### Membrane Removal

Contaminant	MF	UF	NF	RO
Suspended Solids	Yes	Yes	Yes	Yes
Dissolved Solids	No	No	Some	Yes
Bacteria and Cysts	Yes	Yes	Yes	Yes
Viruses	No	Yes	Yes	Yes
Dissolved Organic Matter	No	No	Yes	Yes
Iron and Manganese	Yes	Yes	Yes	Yes
Hardness	No	No	Yes	Yes

\* Could remove some with appropriate pretreatment  
 † Oxidized  
 ‡ High levels without these membranes

- ### Regulatory Rates of Filtration Design Criteria Publication
- Standard rate of filtration  
2 gpm/ft<sup>2</sup> for turbidity removal and 3 gpm/ft<sup>2</sup> for iron removal
  - High rate filtration  
4 gpm/ft<sup>2</sup> for turbidity or iron removal under certain conditions - instrumentation, dual or mixed media, continuous monitoring required  
Higher than 4 gpm/ft<sup>2</sup> may be approved by state on a case by case basis
  - New regulatory requirements for max turbidity on filters in effect - report when exceed

- ### Filtration Process Changes
- Coagulant type change (cold versus warm weather)
  - Adjust coagulant dosage
  - Adjust flash mixer/flocculator mixing intensity
  - Change frequency of sludge removal
  - Decrease or terminate filter aid feed
  - Adjust backwash cycle (rate, duration)

- ### Filtration Process Changes
- Remove mudballs
  - Replenish lost media
  - Clear underdrains
  - Check head loss indicators or calibrate
  - Pre chlorinate
  - Adjust rate of flow

- ### Maintenance of Filter
- Pressure filters should be taken apart and inspected annually
  - Core samples taken to check for proper stratification of layers
  - Underdrain systems may need repairs
  - Visually and regularly monitor media depth and replenish as necessary (keep stock of media)

- ### Maintenance of Filters
- Keep records of backwashing
  - Install backwash turbidimeters
  - Perform scheduled maintenance on valves, pumps, and other equipment
  - Particle counters
  - Install sample lines for each filter and monitor with grab samples

# Disinfection

Water Treatment Process That Destroys Pathogens

## Disinfection Vs. Sterilization

- ◆ Disinfection - the destruction of pathogenic organisms
  - To prevent waterborne disease outbreaks
  - Destroys only disease-causing organisms
- ◆ Sterilization - the destruction of all organisms in the water

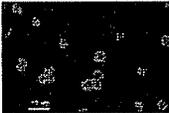
Not all microorganisms are bad!

## Destroying Pathogens in Water

- ◆ Some pathogens can survive long enough in water to cause disease outbreaks
- ◆ Some pathogens form cysts and become inactive, survive longer



*Cryptosporidium*



## Organism Removal Occurs by

- ◆ Coagulation
- ◆ Flocculation
- ◆ Sedimentation
- ◆ Filtration

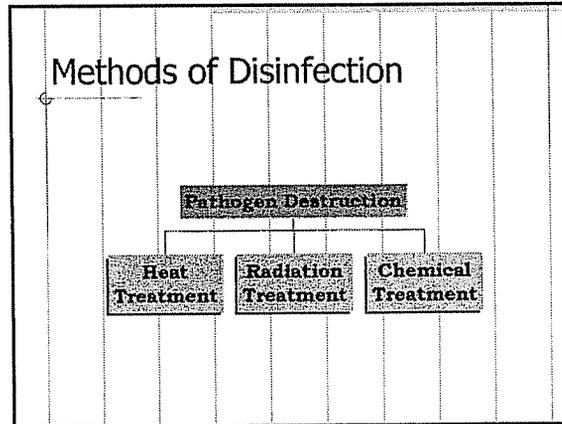


## Detecting Pathogens in Water

- ◆ Coliform bacteria analysis is required for water systems to determine the presence or absence of fecal contaminants in the distribution system
- ◆ This test does not indicate P/A of other pathogens, e.g. *Cryptosporidium*, viruses



*E. coli*



## Heat Treatment

- ◆ Boiling water in emergency
- ◆ "Boil Order" may be issued
- ◆ Rolling boil for 5 minutes
- ◆ Only practical for small amounts of water

## Radiation

- ◆ UV lamps (UV disinfection)
- ◆ Requires relatively clear water
- ◆ Water must pass close to lamp
- ◆ Lack of residual

## Chemical Oxidants

- ◆ Bromine, Br<sub>2</sub>
- ◆ Iodine, I<sub>2</sub>
- ◆ Ozone, O<sub>3</sub>
- ◆ Potassium Permanganate, KMnO<sub>4</sub>
- ◆ Chlorine Dioxide, ClO<sub>2</sub>
- ◆ Miox
- ◆ Chlorine, Cl<sub>2</sub>

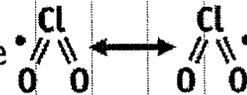
## Ozone

- ◆ Must be manufactured on-site
- ◆ Bluish, toxic gas with pungent odor
- ☉ Powerful disinfectant; produces no THMs
- ☉ Works well for color, taste, and odor control
- ☉ Aids in coagulation
- ◆ Extremely unstable
- ◆ Leaves no residual; limited by solubility
- ◆ Requires large amounts of energy to generate

## Potassium Permanganate

- ◆ Good oxidant
- ◆ Mainly used for taste & odor, iron & manganese, & hydrogen sulfide
- ◆ Can also be used to control zebra mussels, algae and reduce coliforms
- ◆ Does not produce THMs
- ◆ Not registered with USEPA as a disinfectant

## Chlorine Dioxide



- ◆ Formed from chlorine gas (Cl<sub>2</sub>) and sodium chlorite (NaClO<sub>2</sub>)
- ☉ Powerful oxidant, oxidizes Fe and Mn
- ☉ Removes color
- ☉ Lowers THM formation potential
- ☉ Effective at higher pH than chlorine

## Chlorine Dioxide

- ◆ Strict feed guidelines
- ◆ Taste problems may occur
- ◆ Some chlorate and chlorite is formed during  $\text{ClO}_2$  formation, which can cause adverse health effects

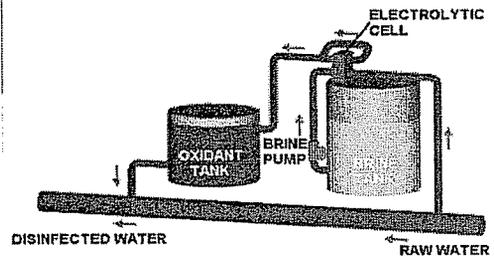
## Miox

- ◆ Mixed oxidant
- ◆ 70% hypochlorite, 4% ozone, 2% chlorine dioxide, 2%  $\text{H}_2\text{O}_2$ , 20% other oxidants
- ◆ Produces oxidants electrolytically from a brine solution
- ◆ Hydrogen gas is by-product

## Miox

- ⊙ Powerful oxidant, reduces taste & odor
- ⊙ Lower THM formation potential than  $\text{Cl}_2$
- ⊙ Inactivates *Cryptosporidium* and *Giardia*
- ⊙ Combined oxidants are faster, more effective than single oxidants

## Miox



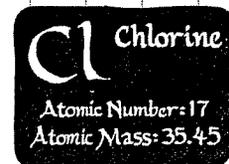
## Chlorine

- ◆ Most commonly used disinfectant in U.S.
- ◆ Maintains residual

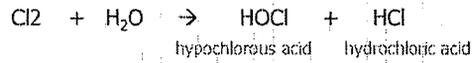


## Chlorine

- ◆ Chlorine gas,  $\text{Cl}_2$
- ◆ Calcium hypochlorite (HTH),  $\text{Ca}(\text{OCl})_2$
- ◆ Sodium hypochlorite (bleach),  $\text{NaOCl}$



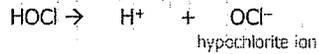
## Chemistry of Chlorination



### ◆ Hypochlorous acid

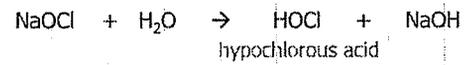
- Most effective disinfectant
- Prevalent at pH less than 7

Dissociates at higher pH:



- Hypochlorite ion is only 1% as effective as hypochlorous acid.

## Chemistry of Hypochlorination



- ◆ Sodium hypochlorite will slightly raise the pH because of the sodium hydroxide (NaOH)

## Chemistry of Chlorination

- ◆ Chlorine reacts with reducing agents in the water

- organic matter
- iron and manganese
- nitrites

- ◆ No free residual will be formed until all reducing agents are destroyed

## Chemistry of Chlorination

- ◆ Chlorine also reacts with ammonia and organics to form combined residuals
- ◆ These are not as effective as free residual

## Residual Formation

- ◆ The breakpoint is the point at which the chlorine dosage has met the demand

- ◆ Any additional chlorine will result in a free residual

## Chlorination Principles

- ◆ Five factors important to success of chlorination:

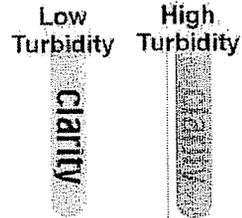
- Chlorine concentration
  - Contact time
  - Water temperature
  - Water pH
  - Foreign substances in the water
- most important

## Disinfection

"kill" is proportional to  $C \times T$

- ◆ Destruction of organisms depends on the concentration of chlorine added and the amount of time the chlorine is in contact with the organisms
- ◆ If one is decreased, the other must be increased to ensure that kill remains the same.

## Interferences



- ◆ Chlorine is only effective if it comes in direct contact with organisms
- ◆ Substances such as ammonia and organic matter reduce effectiveness of chlorine
- ◆ Turbidity protects pathogens from chlorine

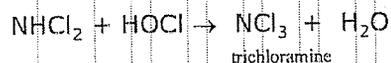
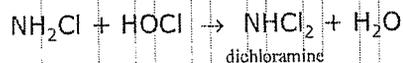
## Chloramination

- ◆ Chloramine formed when ammonia reacts with chlorine
- ◆ Effective against taste & odor problems
- ◆ Can reduce THM level
- ◆ Weaker disinfectant than free chlorine

## Chloramination

- ◆ Usually feed ammonia downstream of chlorine to allow contact time with free  $Cl_2$
- ◆ Higher residual or longer contact time required
- ◆ Hospitals and kidney dialysis centers should be notified if changing to chloramine disinfection

## Chloramines



## Disinfection Application Points

- ◆ Pre-chlorination
  - Applied as raw water enters treatment plant
  - High potential for DBP production
- ◆ Post Chlorination
  - Applied at or immediately before clearwell
  - Required to meet state and federal requirements for residual
- ◆ Distribution System
  - "Booster" chlorination

## Disinfection Application Points

- ◆ Additional Application Points
  - Feeding 2 or more types of disinfectants at different points may help meet requirements
  - Oxidants other than chlorine can be used early in treatment process to reduce DBPs

## Regulations

- ◆ Surface Water Treatment Rule (1989)
  - Applies to all surface water plants and groundwater plants under the influence of surface water (GWUI)
- ◆ Purpose - to protect public from waterborne disease outbreaks

## Regulations

- ◆ Goal - removal or inactivation of all disease-causing organisms
- ◆ Requires operating and monitoring with best available technology, disinfection, and filtration

## Regulations - SWTR

- ◆ Most surface and GWUI plants must provide filtration and disinfection to meet treatment techniques
- ◆ Turbidity requirements
  - Must not exceed 0.3 NTU in 95% of samples
  - No sample exceeding 5 NTU

## Regulations - SWTR

- ◆ Systems serving 3300 or more people - disinfectant residual must be monitored constantly and must not be below 0.2 mg/L for more than 4 hours

## Regulations - SWTR

- ◆ Disinfectant residual
  - must be measured at coliform sampling points
  - must not be undetectable in more than 5% of samples each month for 2 consecutive months

## Regulations - SWTR

- ◆ Total coliform Rule
  - December 31, 1990, new coliform P/A became effective
  - If a routine sample is coliform positive, it must be tested for presence of fecal or E. coli

## Chlororganics

Organic material +  $\text{Cl}_2$  = trihalomethanes

- ◆ Organics found in all surface and groundwaters
- ◆ Humic and fulvic acids from decomposing plant material
- ◆ THM's are potential carcinogens

## Trihalomethane Limits

- ◆ Current MCL for total THM = 0.08 mg/L
- ◆ Applies to:
  - Community water systems
  - Population: 10,000+
  - Adds a disinfectant (chlorine)

## Trihalomethane Limits

- ◆ Preferred method of controlling THM's is to prevent the formation
- ◆ Microbiological safety of the water must not be compromised

## Other Disinfection By-products

- ◆ Disinfection by-products other than THM's can be formed from chlorine
- ◆ Other disinfectants produce by-products
- ◆ The Enhanced SWTR addresses some of these, others still being studied

## Laboratory Practices

### Water Quality Monitoring

- Process Control Monitoring
  - All public water systems that provide some type of treatment must monitor water quality
- Monitored to ensure safety and integrity
- Monitored to meet state and federal requirements
- Monitor raw, finished and where you expect a physical/chemical change in your plant
- Monitor in distribution system also, quality can degrade due to contamination or growth of organisms

### Prevent Quality Degradation

- Treated water is disinfected, not sterilized
- Disinfection kills or inactivates harmful organisms (pathogens)
- Organisms can grow in distribution system if conditions are right
- To prevent growth of organisms:
  - Keep chlorine residual up
  - Keep excess nutrients out
  - Prevent stagnation
  - Prevent cross-connections

### Water Quality Analysis

- The first step in water quality analysis is collecting samples which accurately represent the water
  - Representative sample - sample which contains basically the same constituents as the body of water from which it was taken
  - Improper sampling is one of the most common causes of error in water quality analysis
- All chemical analysis records must be kept for 10 years

### Types of Samples

- Grab sample
  - Single volume of water
  - Representative of water quality at exact time and place of sampling
  - Coliform bacteria, residual chlorine, temperature, pH, dissolved gases
- Composite samples
  - Representative of average water quality of location over a period of time
  - Series of grab samples mixed together
  - Determines average concentration
  - Not suitable for all tests

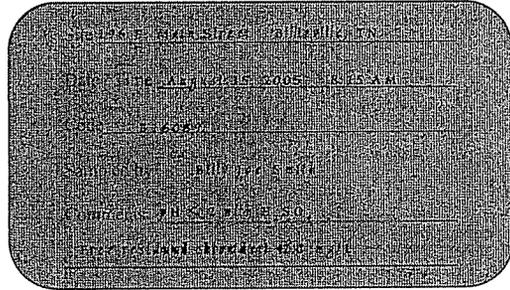
### Sample Volume and Storage

- Volume depends on test requirements
- Use proper sampling container
- Follow recommended holding times and preservation methods
  - if bottle already has preservative or dechlorinator in it, don't over fill or rinse out
- ✓ If you have questions regarding volume, container or holding times, check *Standard Methods* or contact the lab if you have an outside lab do your analysis

## Sample Labeling

- Specific location (address)
- Date and time sampled
- Chlorine residual
- pH and temperature (if needed)
- Sample number or identification
- Name or initials of person taking sample

## Sample Labeling



## Selecting Sampling Points

- Raw-water supply
- Treatment plant
- Distribution System

## Raw-water Sampling Points

- Install valve or sample cock on raw-water transmission lines or well discharge pipe

## Treatment Plant Sampling Points

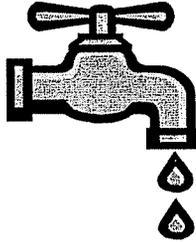
- Sampling from various points helps determine efficiency of processes
- Sample at every point where a change in water quality is expected
- Finished water sample point usually at point of discharge from clearwell

## Distribution Sampling Points

- Distribution sampling is best indicator of system water quality
- Water quality changes in distribution system:
  - Corrosion - increase in color, turbidity, taste & odor
  - Microbiological growth - slime
  - Cross-connections

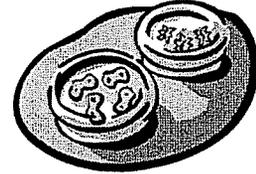
## Distribution Samples

- Determine water quality at customers' taps
- Most common tests are chlorine residual and coliform bacteria
- Number of samples depends on size of system and water source



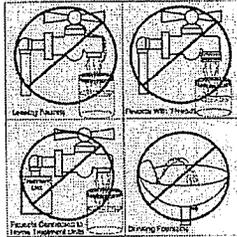
## Distribution Samples

- Only approved containers should be used to collect sample, should have sodium thiosulfate in them to dechlorinate the water



## Bacteriological Samples

- Bacteriological samples should never be taken from a hydrant or hose
- Only collect samples from approved faucets
- Don't collect samples from swivel faucets
- Only use cold water tap
- Front yard faucets on homes with short service lines



## Bacteriological Samples

- Do not flame faucet with torch
- Turn on faucet to steady flow and flush service line (2 - 5 min) - getting water from main line
- Fill bottle to proper level
- Label bottle with pertinent information
- Refrigerate to proper temperature, 4°C
- Test as soon as possible - within 30 hours

## Microbiological Indicator Organism

- Always present in contaminated water
- Always absent when no contamination
- Survives longer in water than other pathogens
- Is easily identified
- Water treatment indicator organism
  - Coliform group (total coliforms)

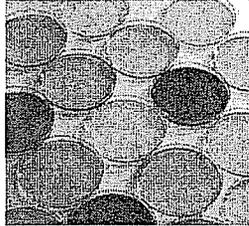
## EPA Approved Methods

- Multiple-Tube Fermentation
- Presence-Absence Test
- MMO-MUG
- Membrane Filter Method
- Colilert Method



## Bacteriological Samples

- The MCL for coliform bacteria is based on presence or absence.
- Finished and distributed water should be 0 (absent)
- Must keep results for 5 years.



## Membrane Filter Technique

- 100 ml sample is filtered through a membrane filter under a vacuum
- Filter placed on sterile petri-dish containing M-Endo broth (food source for bacteria) for Total Coliforms
- Petri-dish labeled, turned upside down, placed in incubator at  $35^{\circ} \pm 0.5^{\circ} \text{C}$  for 24 hours
- A coliform bacteria colony will grow at each point on filter where a viable bacterium was left during filtering
- The colonies will appear red with a green-gold metallic sheen



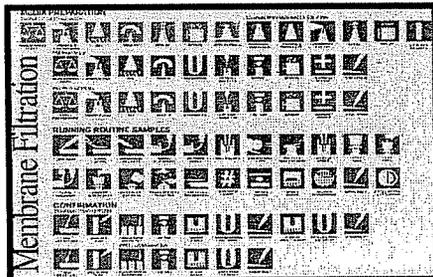
## Fecal Coliform Determination

- Membrane filtration test
- More reliably indicates the potential presence of pathogenic organisms
- Same procedure as Total Coliform, 100 ml sample is filtered through a membrane filter under a vacuum
- Filter placed on sterile Petri-dish containing mFC broth
- Incubation at  $44.5 \pm 0.2^{\circ}\text{C}$  for 24 hours
- Bacterial colonies appear blue
- Looks for heat tolerant bacteria

## Colilert Method for P/A

- Equipment needed: incubator, UV lamp, comparator and pH meter to check tryptic soy broth
- Sample bottle is used in the testing procedure
- Tests for total coliforms and *E. coli* in one step
  - Sample turns yellow if positive for total coliforms
  - Sample fluoresces if positive for *E. coli*
- Detects a single viable coliform per sample

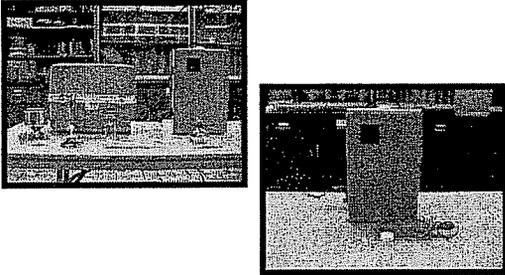
## Membrane Filter Pictorial



## Colilert Method Pictorial



## Equipment Comparison



## Chlorine Residual

- Free chlorine residual must be tested and recorded when bacteriological samples are collected
- Two most common tests:
  - Amperometric titration
    - Less interferences such as color and/or turbidity
  - DPD ( N,N-diethyl-*p*-phenylenediamine )
- Analysis should be performed as soon as possible, exposure to sunlight or agitation of the sample will cause a reduction in the chlorine residual

## Chlorine Residual

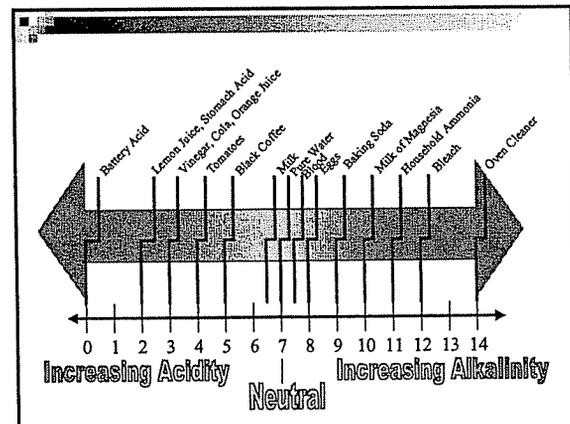
- DPD colorimetric method most commonly used
  - Match color of sample to a standard
  - Swirl sample for 20 seconds to mix
  - Within one minute of adding reagent, place it into colorimeter
- Must maintain a free residual of 0.2 mg/L throughout entire distribution system
  - chlorine residual must not be less than 0.2 mg/L in more than 5% of samples each month for any two consecutive months

## pH

- Power of hydrogen
  - Measurement of the hydrogen ion concentration
  - Each decrease in pH unit equals a 10x increase in acid
- Indicates the intensity of its acidity or basicity
- Scale runs from 0 to 14, with 7 being neutral
- Probe measures millivolts, then converts into pH units
  - Temperature affects millivolts generated, therefore you need a temperature probe as well for corrections

## pH

- Calibrate daily with fresh buffers
  - Use at least two buffers
- Gel filled probes are not recommended for water industry
  - Water is too clean for probe to make an accurate measurement
- Store probe in slightly acidic solution
- Replace probes yearly



## Fluoride

- Added to drinking water for the reduction of dental caries (cavities)
- Interferences:
  - Phosphate has positive interference
  - Aluminum has negative interference
- Primary MCL = 4.0 mg/L
- Secondary MCL = 2.0 mg/L
- State of Tennessee recommends 0.9 to 1.3 mg/L

## Fluoride

- Methods
  - SPADNS (interferences are more common with this test)
    - Alum or aluminum complexes can interfere
    - There is a 1 minute reaction time
  - Electrode
    - TISAB removes most of the aluminum interferences
    - Store probe in a standard, the higher the better
    - Probes can last 3-5 years
    - Can clean with toothpaste

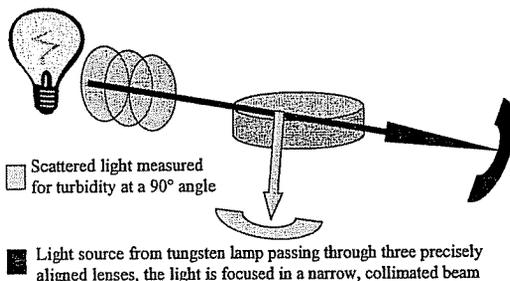
## Turbidity

- Physical cloudiness of water
  - Due to suspended silt, finely divided organic and inorganic matter, and algae
- Nephelometric method measures scattered light
  - unit: NTU
- SDWA stipulates specific monitoring requirements

## Turbidity

- Measure samples ASAP
- Keep sample tubes clean and scratch free inside & out
- Calibrated at least quarterly
- Records must be kept until next sanitary survey

## Turbidimeter



## Alkalinity

- Capacity of water to neutralize acids
- Due to presence of hydroxides, carbonates and bicarbonates
- Many water treatment chemicals (alum, chlorine, lime) alters water alkalinity
  - alum and chlorine destroy
  - lime adds
- Titration using  $H_2SO_4$  to pH endpoint or color change of indicator

## Alkalinity

- Expressed as mg/L  $\text{CaCO}_3$
- Methyl orange or Bromocresol Green-Methyl Red measures total alkalinity
  - End point color change may be difficult to see with methyl orange
  - If using bromocresol green-methyl red and water is chlorinated, use sodium thiosulfate to remove chlorine that interferes with the color change

## Hardness

- Mainly due to calcium and magnesium ions in solution
- Can cause scale when water evaporates or when heated in water heaters and pipes
- Test involves titration with 0.02 N EDTA standard from a red to a blue endpoint
- Precautions: metal ions may interfere, so an inhibitor may be needed
- Measured as  $\text{CaCO}_3$  in mg/L

## Iron and Manganese

- can precipitate out in distribution system
- elevated levels in water can cause staining of plumbing fixtures and laundry
  - may give water objectionable taste and odor
- SMCL for iron is 0.3 mg/L
- SMCL for manganese is 0.05 mg/L



## Lead and Copper Rule

- Established in by EPA in 1991
- All community and non-community water systems must monitor for lead and copper at customers' taps
- If aggressive water is dissolving these metals, system must take action to reduce corrosivity
- Samples must be taken at high risk locations - homes with lead service lines
- Water must sit in lines for at least 6 hours - first draw
- One liter of sample collected from cold water tap in kitchen or bathroom
- Test results must be maintained for 12 years

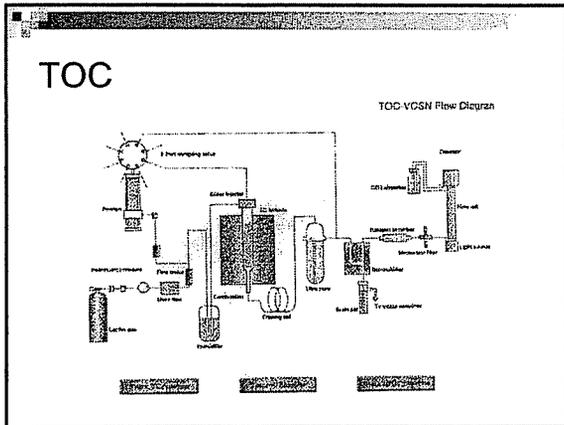
## Lead and Copper Rule

- Action levels
  - Lead - 0.015 mg/L
  - Copper - 1.3 mg/L
- If action level is exceeded in more than 10% of samples, must take steps to control corrosion:
  - Corrosion control program
  - Source water treatment
  - Public education
  - And/or lead service line replacement



## TOC

- Total organic carbon
- High-temperature combustion at 950°C
- Sample is injected into a heated reaction chamber packed with oxidative catalyst such as cobalt oxide
- Water is vaporized and the organic carbon is oxidized to  $\text{CO}_2$  and  $\text{H}_2\text{O}$
- $\text{CO}_2$  is transported in the carrier-gas streams and is measured by means of a nondispersive infrared analyzer (NDIR)
- Samples are preserved with sulfuric or phosphoric acid and cooled to 4°C

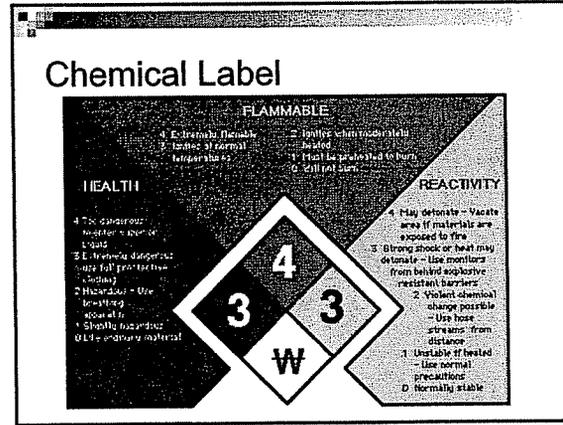


- ## Lab Safety
- Read MSDS for all chemicals used in lab
  - Store chemicals properly
  - Know where safety equipment is stored
  - Never pour water into acid
  - CPR and First Aid Training (TOSHA requirement)
  - Clean chemical spills immediately
  - Follow published lab procedures (Standard Methods)
  - Read and become familiar with Safety SOP

- ## MSDS
- Material Safety Data Sheets
  - Keep on file for all chemicals purchased
    - According to the Americans with Disabilities Act of 1990, MSDS's should be kept for a minimum of 30 years
  - Includes all information shown on chemical label and more

- ## MSDS
- Must be readily available for employee review at all times you are in the work place
    - They can't be locked in an office or filing cabinet to which you don't have access to
    - If they are on a computer, everyone must know how to access them
  - If you request to see an MSDS for a product you use at work, and your employer can't show it to you, after one working day you may refuse to work with that product until you are shown the correct MSDS

- ## MSDS
- Lists:
    - Common and chemical name
    - Manufacturer info
    - Hazardous ingredients
    - Health hazard data
    - Physical data
    - Fire and explosive data
    - Spill or leak procedures
    - PPE
    - Special precautions



## QA / QC Program

- A QA/QC program consists of procedures that ensure the precision and accuracy of tests performed on a daily basis
- Precision – repeatability; being able to get the same result time after time
  - Shooting at a target and hitting the same spot repeatedly
- Accuracy – closeness of test results to the correct (known) value
  - Shooting at a target and hitting the bull's eye

## QA / QC Program

- Three phases:
  - Keeping records
  - Documenting that equipment is regularly calibrated and temperatures are correct
  - Perform QC tests to demonstrate precision and accuracy

## Record Keeping

- Maintain a complete and accurate list of exact locations of all sampling sites
- Maintain a complete and accurate list of all test procedures used
  - Record method numbers on bench sheets
- Write in pen
- Initial your entries
- Use a notebook that has numbered pages

## Quality Control Tests

- Duplicates
- Blanks
- Lab Standards
- Unknown Lab Standards
- Spikes

## Duplicates

- Simplest form of QC test
- Run two tests on one sample
  - This shows how precise the analyst's procedure is
  - Sample results should yield very close results
    - goal is to have no difference
- General recommendation is to run a duplicate every 10 samples

## Common source of errors for Dups.

- |                       |                      |
|-----------------------|----------------------|
| ■ Sample size         | ■ Titration          |
| □ Should be same size | □ Misreading burette |
| ■ Insufficient mixing | ■ Weighing           |
| ■ Dirty glassware     | ■ Calibration        |
| ■ Calculation errors  | ■ Reagent water      |
| ■ Reagents            |                      |

## Blanks

- Blanks can show test interference
- Blanks should be treated as a sample
  - Take through all procedures
  - Add all reagents or incubate along with other samples
- Target value for a blank is zero

## Blanks

- Positive blanks show a problem
  - Bad reagents
  - Bad technique
  - Unclean glassware
  - Bad distilled water

## Blanks

- Coliform tests
  - A blank should never be positive
  - If the pre-sample blank has colony growth, the equipment was not properly sterilized
  - If the post sample blank has colony growth, the equipment was not cleaned well enough between samples

## Laboratory Standards

- Determines accuracy
- If the test value agrees with the true value, the test has been performed accurately
- Mix onsite or purchased from a supplier
  - Purchased standards should be the preference, because this can reduce the possibility of having mixing errors
  - They also come with a certificate of analysis
- Perform along with duplicates
  - One every 10 samples

## Unknown Laboratory Samples

- EPA quality control unknowns
- Commercially available
- Gives confidence to analyst
- Can show deficiencies in the testing procedure

## Spikes

- Determines accuracy
- A known amount of standard is added to a sample
- The results should equal the sample value plus the added known amount
- Goal is to have 100% recovery of spike and sample

## Spikes

- If your sample result was 100 mg/L and you added 50 mg/L into the spiked sample, you should yield 150 mg/L

## Other Samples

- Some labs split samples with other labs to check the accuracy of the testing procedure
- If you are concerned that your contract lab is getting wrong values, send in a known standard as a sample
  - This does double your cost, but you can see how close they are to the known value
  - Don't tell the contracted lab that the second sample is a known

QUESTIONS??

**Randy Jones**  
**Tennessee Fleming Training Center**

Randy has a B.S. in Environmental Science from Middle Tennessee State University (1978) and a Masters in Public Administration from Tennessee State University (1989).

From 1990 until 2003, he worked for Metro Water Services as an Assistant Treatment Plant Manager and Plant Manager positions held. In 2003 he joined the State of Tennessee's Fleming Training Center as Supervisor of Training Programs. Randy is also a Grade 4 Tennessee water and wastewater operator

Randy has been a member of AWWA member since 1990. He currently serves as chairman of the Honors and Awards committee and was the recipient of the 2004 Outstanding Service Award.

## **Felicia A. Hix**

### Professional Experience

#### *Environmental Specialist*

J.R. Fleming Training Center, Murfreesboro, TN  
State of Tennessee, Department of Environment and Conservation

12 years experience instructing classes in the operation of wastewater treatment plants and collection systems. Provide technical assistance in areas of process optimization, troubleshooting, and regulatory compliance to wastewater treatment facilities throughout Tennessee.

### Certification

*Grade IV Wastewater Treatment Plant Operator*  
State of Tennessee

### Education

M.S., *Biology*, Middle Tennessee State University, 1998.

B.S., *Agriculture*, Tennessee Technological University, 1987.

A.S., *Basic Engineering*, Motlow State Community College, 1983.

**Christopher Duckett  
Fleming Training Center  
Murfreesboro, Tennessee**

As an Environmental Specialist for Tennessee's Department of Environment and Conservation, Christopher Duckett is currently an instructor at the Fleming Training Center in Murfreesboro, TN. He taught several branches of science at the high school level for many years before joining the staff at FTC. Christopher has also worked for a time as an Environmental Specialist for Tennessee's Division of General Environmental Health, and as a Biologist for a private environmental consulting firm in Southwest Florida.

Andy Gentry  
Operator Certification Section  
Kentucky Division of Compliance Assistance

Andy has 2 degrees from the University of Kentucky: one in Forest and Wood Products Utilization and one in Forest Research. He also has a degree from Western Kentucky University in Industrial Education. Andy has spent over 18 years training and certifying drinking water system operators (both plant and distribution, both surface and ground) for the State of Kentucky and has received numerous certificates, honors and awards for his work.

Tim Ricketts is a wastewater trainer as well as a member of the "Comptrain" team. For the last 5 years Mr. Ricketts has been member of the division's wastewater training staff and a "Comptrain" team member. For the preceding 9 years Mr. Ricketts was an environmental inspector for the Division of Water in the Louisville Regional office. The decade before coming to the Division of Water was spent traveling nation wide as an inspector in the asbestos industry. Mr. Ricketts has a total of 28 years experience in the environmental industry.

Sam Lester  
Operator Training Section  
Kentucky Division of Compliance Assistance

Sam is a graduate of Morehead State University with a B.S. Degree in Biology. Since his employment in 1980 with the Department of Environmental Protection, Sam has worked as a field inspector and in various supervisory and management positions in the Field Operations Branch of the Division of Water. In 2001 Sam transferred to the Division of Water's Operator Certification Section. In June 2004 the Operator Certification Program was transferred out of the Division of Water and reorganized into the Division of Compliance Assistance.

Currently Sam's job duties include training, testing, and certification of Kentucky's Class I through Class IV wastewater treatment operators.

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COMMISSION

# 2005

**Water**

**Professionals  
Conference**

 Kentucky/  
Tennessee Section

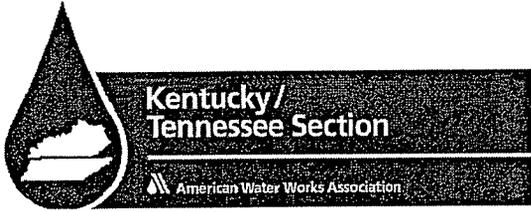
 KY  
TN WEA

 American Water Works Association

# SESSION A

**Regulatory Update Session (Session A)**  
**Monday, September 12, 2005**  
**9:00 – 10:30 am**

Representatives from the Kentucky and Tennessee drinking water programs will provide updates on their respective programs, including regulations (at both the federal and state levels), initiatives, personnel and other key components of the programs. Sufficient time has been allowed for questions and answers.



<b>Office Use Only</b>
Session #: <u>A</u>
Session Date/Time: <u>9/12 A</u>
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: 2005 KY-TN Water Professionals Conference

CONFERENCE DATE: September 12, 2005

PAPER TITLE (128 Characters & Spaces Maximum)  
Kentucky Drinking Water Program Update

PRESENTATION DESCRIPTION: (up to 30 words)  
The update will include information on Kentucky's regulations, streamlining initiatives, accomplishments, and obstacles for the drinking water program.

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Ms. Donna S. Marlin

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Drinking Water Branch Manager

Company Division of Water, Environmental and Public Protection Cabinet

Address 14 Reilly Road

City Frankfort State KY Zip 40601

Phone 502-564-3410 Fax 502-564-9899 E-Mail donna.marlin@ky.gov

**PRESENTER BIO:** (up to 100 words)

Employed by the Dept. for Environmental Protection since 1986.  
Graduated from the University of Kentucky in 1994 with BS in Civil Engineering.  
Reviewed technical plans and specifications on wastewater facilities from 1993 to 1994 and drinking water systems from 1994 to 1999.  
From July 1999 to October 2001 coordinated and managed the Drinking Water State Revolving Fund and the Capacity Development Programs.  
Temporarily reassigned to the Cabinets Empower project from October 2001 to May 15, 2003 with the primary responsible of coordination and management of the requirements library team.  
Appointed Drinking Water Branch manager on May 15, 2003.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

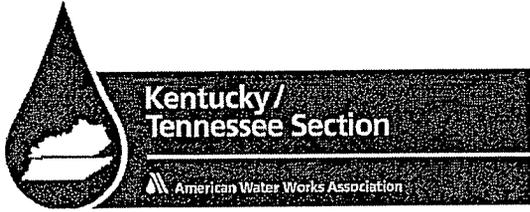
**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

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**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_



<b>Office Use Only</b>
Session #: <u>A</u>
Session Date/Time: <u>9/12 9:00 am</u>
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: KY/TN 2005 Water Professionals Conference

CONFERENCE DATE: September 11-14, 2005

PAPER TITLE (128 Characters & Spaces Maximum) Regulatory Update

PRESENTATION DESCRIPTION: (up to 30 words) Recent Drinking Water Regulation changes by the Tennessee Water Quality will be described.

None

**AUDIO VISUAL NEEDS:**

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

Mr. Robert L. Foster, Jr.

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Deputy Director

Company TN Division of Water Supply

Address 401 Church Street,

City Nashville State TN Zip 37243-1549

Phone 615-532-0155 Fax 615-532-0503 E-Mail Robert.Foster@state.tn.us

**PRESENTER BIO:** (up to 100 words)

From August, 1989, until the present, I have worked as the Deputy Director for the Tennessee Division of Water Supply. As Deputy Director, I am responsible for the supervision of public water systems inspections throughout Tennessee. I am also responsible for the Safe Dams Program, Water Well Program, elements of the Ground Water Protection Program, Wellhead Protection Program and Pesticide Management Plan Coordination with

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE**

**TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM**

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

**TOPIC CATEGORY:**

- CUSTOMER SERVICE & FINANCE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

**PRESENTATION INFORMATION:**

**PRESENTER(S):**

NAME:	David	Wilkes
COMPANY:	Jordan, Jones and Goulding Inc	
ADDRESS:	6801 Governors Lake Pkwy	
CITY/ST/ZIP:	Norcorss, GA 30071-1136	
PHONE:	678-333-0364	
FAX:	770-455-7391	
EMAIL:	dwilkes@jjg.com	

**TITLE OF PAPER (128 characters and spaces maximum):**

Understanding and Using AWWA Standards

**DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:**

NA

**IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:**

other AWWA section conferences, DSS and ACE

**IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:**

**ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.**

**ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)**

Understanding and Using AWWA Standards

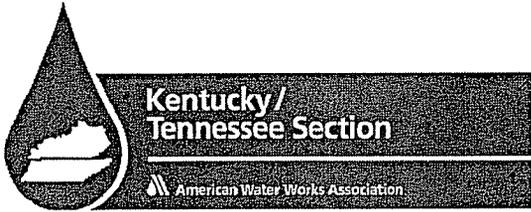
It is the intention of the American Water Works Association Standards Council to promote and build awareness of the Standards and the international reputation of AWWA as the Authoritative Resource on Safe Water and a premier standards publishing organization. The AWWA Standards are a major component of the benefit package available to AWWA members to be used in their day-to-day operations.

The presentation discusses what a Standard is, how a Standard is developed, how to use them effectively, etc. It also explains who develops the standards, the make up and objectives of standards committees, what is ANSI, and how to get involved in the process. New standards and up-coming changes will be discussed also.

Attendees will benefit as they learn about the Standards since the types of tasks and products that pertain to their job functions are covered by AWWA Standards. Understanding and appropriately using the standards will improve their job performance. When AWWA Standards are specified, the quality of your waterworks products is ensured. Standards effectively help to keep utility professionals knowledgeable, operations running proficiently and water quality at its highest for consumers.

Respectfully submitted for the Standards Council,

Alison Posinski  
Standards Councilmember and Chair of Communications Committee



<b>Office Use Only</b>
Session #: <u>A</u>
Session Date/Time: <u>9/12 10:45 Am</u>
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: Water Professionals Conference

CONFERENCE DATE: September 11-14, 2005

PAPER TITLE (128 Characters & Spaces Maximum) Understanding and Using AWWA Standards

PRESENTATION DESCRIPTION: (up to 30 words)

**AUDIO VISUAL NEEDS:**

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. David R. Wilkes

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Director of Water Treatment

Company JJG

Address 6801 Governors Lake Parkway

City Norcross State GA Zip 30071

Phone 678-333-0364 Fax \_\_\_\_\_ E-Mail dwilkes@jjg.com

PRESENTER BIO: (up to 100 words)

Mr. Wilkes has been involved in the drinking water field for over 20 years as a process engineer, project manager and technical expert. He has designed many types of facilities from groundwater contaminated with TCE/PCE to large surface water facilities using the latest technologies. He is Past National Chair of the Water Treatment Design and Construction Committee for AWWA. He is currently a Trustee of the Engineering & Construction Division of AWWA and serves on the AWWA Standards Council.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Hal Balthrop, P. E.	
COMPANY:	Metro Water Services	
ADDRESS:	1616 3 <sup>rd</sup> Ave. North	
CITY/ST/ZIP:	Nashville, TN - 37028	
PHONE:	615-862-4847	
FAX:	615-862-4839	
EMAIL:	hal.balthrop@nashville.gov	

TITLE OF PAPER (128 characters and spaces maximum):  
Implementation of Metro Water Services Cross Connection Control Plan

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
Established process completed February 2005 - practice is on-going

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
no

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT BRIEFTITLE MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

In the Fall of 2003 Metro Water Services (MWS) experienced its latest Sanitary Survey. Historically, MWS had earned scores in the mid to upper 90s and has always been deemed an approved water system. In the 2003 survey, MWS' scored in the 70s. This took MWS by surprise and had many concerning effects.

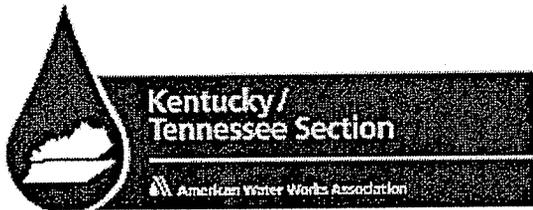
One aspect of the survey's deficient score was for the department's cross-connection program. Although MWS had for years performed a level of effort, the regulatory agency representatives correctly identified the program's problems. Since the time of the last survey MWS has revamped and updated its methodology and practice in working toward ensuring safe drinking water. By incorporating in-house customer and infrastructure data-bases, third party field investigations and considering customer concerns, MWS has become and continues to execute a compliant program.

This presentation will include a brief history, the latest sanitary survey results, outcomes of meetings with regulators, resulting program structure and implementation strategies. We will share program strengths and lessons learned as we have implemented our program. We will also demonstrate compliance, cost and cost-effectiveness, public and internal communication and future direction of the program.

**Roney, Julie (EPPC DEP DOW)**

**From:** Knight, Marcus (WS) [marcus.knight@nashville.gov]  
**Sent:** Tuesday, August 09, 2005 8:16 AM  
**To:** Julie.Roney@ky.gov  
**Cc:** Balthrop, Hal (WS)  
**Subject:** RE: Speaker Introduction 2005.doc

Session #: <u>A</u>
Session Date/Time: <u>9/12 / 2004</u>
Moderator: _____



**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: 2005 Water Professionals Conference

CONFERENCE DATE: September, 2005

PAPER TITLE (128 Characters & Spaces  
Maximum)

Metro Water Services' Cross Connection Control Plan

PRESENTATION DESCRIPTION: (up to 30  
words)

What Metro Water Services Plan looks like today after years of neglect and regulatory non-compliance.

**AUDIO VISUAL NEEDS:**

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Hal Balthrop, P. E.

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL ONE-DAY

Title Assistant Director

Company Metro Water Services - Nashville

Address 1616 3<sup>rd</sup> Ave. North

City Nashville State TN Zip 37208

Phone 615-862-4847 Fax 615-862-4839 E-Mail Hal.balthrop@nashville.gov

PRESENTER BIO: (up to 100 words)

Hal Balthrop is a licensed Professional Engineer and holds his Distribution and Collection System Certification with the State of Tennessee. He is also an officer in the Tennessee Society of Professional Engineers. Hal has presented at AWWA and WEF on utility practices.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) Mr. Marcus Knight, P. E.

CONFERENCE REGISTRATION STATUS: FULL ONE-DAY

Title Engineer II

Company Metro Water Services – Nashville

Address 1616 3<sup>rd</sup> Ave. North

City Nashville State TN Zip 37208

Phone 615-862-4868 Fax 615-862-4839 E-Mail Marcus.knight@nashville.gov

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER  POSTER

AREA OF CONSIDERATION:  WATER  COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH
- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Rengao Song, Ph.D.	
COMPANY:	Louisville Water Company	
ADDRESS:	550 South 3 <sup>rd</sup> Street	
CITY/ST/ZIP:	Louisville	
PHONE:	502-569-0880	
FAX:	502-569-0813	
EMAIL:	rsong@lwcky.com	

TITLE OF PAPER (128 characters and spaces maximum):  
2005 Kentucky River Crude Oil Spill: Experience and Lessons

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
Completed

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
No

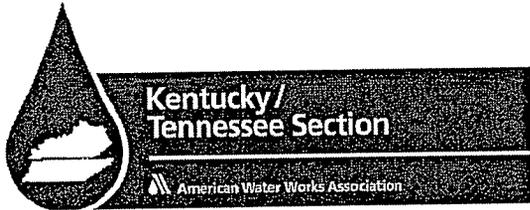
IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

At 1:00 AM, a 22-inch pipeline operated by Mid-Valley Pipeline ruptured and released an estimated 83,000 gallons of crude oil into the Kentucky River near Carrollton, Kentucky. The location of the pipe break was along the north bank of the river at a point 15 miles upstream of the confluence with the Ohio River.

The crude oil spill caused the Ohio River water to have a strong petroleum odor that was detectible at both Louisville Water Company's two intakes. On a 3-point scale for odor index number, normal river odor is measured as less than 1. During the oil spill event, the source water was measured as a 3, and finished water was maintained below 1, due to the effectiveness of the PAC treatment. The oil spill contained a number of regulated chemicals listed in the Environmental Protection Agency (EPA) drinking water standards. These included the BTEX compounds of benzene, toluene, ethelyene, and xylene. Although these chemicals never exceeded their MCLs, concentrations of up to 7.5 ppb were detected. The oil spill did not pose a health risk to the community, based upon the EPA MCL regulations, however even small trace levels of crude oil will release a significant taste and odor if not removed from the drinking water supply. The Call Center received less than 30 calls about the spill, mostly related to inquires and the perceptions associated with spill. The local media ran several print, radio, and television news stories regarding the spill, each reporting to consumers there would be no impact on the drinking water supply.

This paper will present the experience and what lessons LWC learned during this oil spill event that cost LWC more than \$300,000.



<b>Office Use Only</b>
Session #: <u>A</u>
Session Date/Time: <u>9/12 2:15pm</u>
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: 2005 KY-TN AWWA

CONFERENCE DATE: September 2005

PAPER TITLE (128 Characters & Spaces Maximum)  
**2005 KY River Crude Oil Spill: Experiences and Lessons**

PRESENTATION DESCRIPTION: (up to 30 words)  
**2005 KY River Crude Oil Spill: Experiences and Lessons**

**AUDIO VISUAL NEEDS:**  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Dr. Rengao Song

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Manager of Water Quality and Research

Company Louisville Water Company

Address 550 South 3<sup>rd</sup> Street

City Louisville State KY Zip 40202

Phone 502-569-0880 Fax 502-569-0813 E-Mail rsong@lwcky.com

**PRESENTER BIO:** (up to 100 words)

Dr. Song is the Manager of Managing Water Quality and Research at the Louisville Water Company (LWC). His expertise resides in chemical and physical principles of environmental engineering processes especially drinking water quality and treatment and the fate of organic pollutants.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

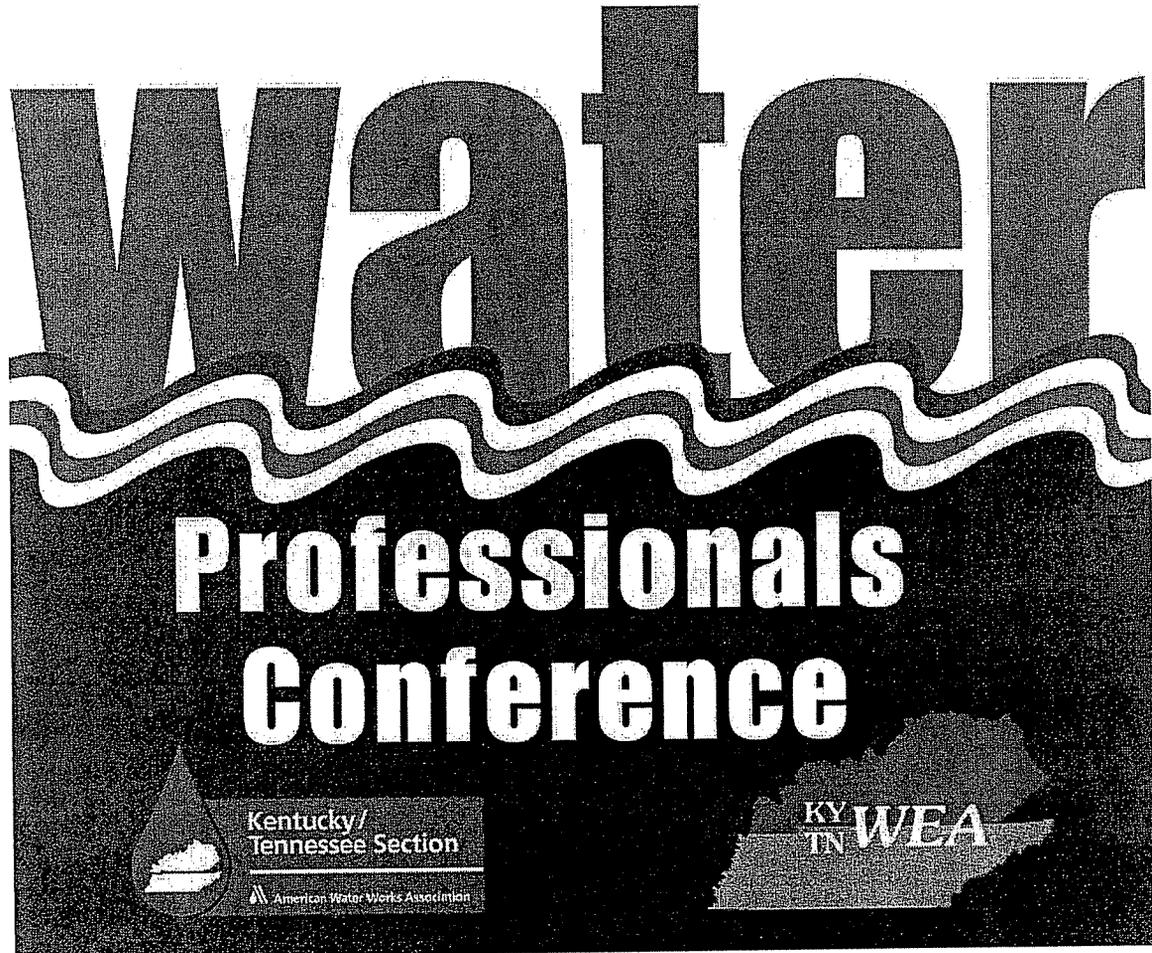
**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

RECEIVED

SEP 06 2005

PUBLIC SERVICE  
COMMISSION

# 2005



# Water

## Professionals Conference

 Kentucky/  
Tennessee Section

 American Water Works Association

 KY  
TN WEA

# SESSION B

**Customer Service Roundtable (Session B)**  
**Monday, September 12, 2005**  
**9:00 – 10:30 am**

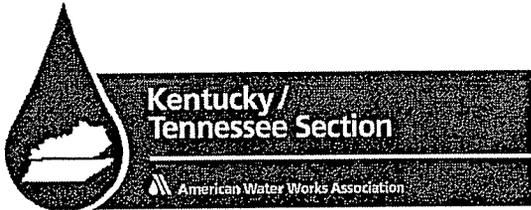
Three topics will be discussed for 20 minutes each, and then the floor will be open to questions and answers for the remainder of the session. The 3 topics are:

1. Customer Service Representatives (CSR) Working From Home—Ted Austin (Jackson Energy, TN—Customer Service Department)
2. Are Your CSRs Safe? —Karla Kincaid (Rutherford County Consolidated Utility District, TN—Customer Service Department)
3. Alternate Payment Methods—Tommy Brown and Debby Ski (Bowling Green, KY—Customer Service Department)

Gloria Jackson with Metro Water Services in Nashville will facilitate the Roundtable Session. Her Speaker Information is attached.

**Gloria Jackson**  
**Metro Water Services**  
**Nashville, Tennessee**

Gloria is the Training Coordinator for Metro Water Services' Customer Services, and Project Manager (Design and Training) of most new technology for the Division. Her career of 20 years with the Department has been with Customer Services. She began her career as an Account Clerk, and then progressed to Assistant Supervisor, Supervisor and Assistant Manager with various Sections such as Billing & Collection, Phone Center, and Lobby/Cash. She is also working with Meter Reading and Field Activities with the Mobile Dispatching implementation and implemented the use of an IVR along with annual enhancements beginning in 2002.



<b>Office Use Only</b>
Session #: <u>B</u>
Session Date/Time: <u>9/12 9:30a</u>
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: Water Professional Conference

CONFERENCE DATE: 9-12-05

PAPER TITLE (128 Characters & Spaces Maximum)

Roundtable discussion: Customer Service Rep's working from home  
Are your Customer Service Rep's safe  
Alternate payment methods

PRESENTATION DESCRIPTION: (up to 30 words)

Each topic will have 20 minutes for presentation, remaining time will be open for discussion.  
Customer Service Rep's working from home  
Are your Customer Service Rep's safe  
Alternate payment methods

AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Ted Austin, Karla Kinkaid, Tommy Brown, respectfully

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* Mr. Ted Austin, Ms. Karla Kinkaid, Mr. Tommy Brown

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Administrator Officer 4

Company Metro Water Services

Address 1700 Third Ave N

City Nashville State TN Zip 37208

Phone 615-862-4632

Fax 615-862-4837

E-Mail Gloria.jackson@nashville.gov

**PRESENTER BIO:** (up to 100 words)

Members of AWWA, members of Ky/Tn Committee

Ted- Jackson Energy Authority, Jackson TN

Karla- Consolidated Utility District, Murfreesboro TN

Tommy- Bowling Green Municipal Utility, Bowling Green Kentucky

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

Phone \_\_\_\_\_

Fax \_\_\_\_\_

E-Mail \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

Phone \_\_\_\_\_

Fax \_\_\_\_\_

E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME: Sarah Haidri-Hasan

COMPANY: Malcolm Pirnie, Inc.

ADDRESS: 5975 Castle Creek Parkway North Dr.

CITY/ST/ZIP: Indianapolis, IN 46250

PHONE: (317) 594-0989

FAX: (317) 594-0185

EMAIL: shasan@pirnie.com

TITLE OF PAPER (128 characters and spaces maximum):  
TO BOTTLE OR NOT TO BOTTLE: INITIATING A BOTTLED WATER OPERATION

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
November 2004

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
2003, AWWA National Conference

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
 ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE  
 EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005  
 JPC.

File : ABSTRACT\_BOTTLED WATER OPERATION\_SARAHHAIDRI-HASAN.doc

EMAIL ADDRESS: Julie.Roney@ky.gov

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

## **TO BOTTLE OR NOT TO BOTTLE: INITIATING A BOTTLED WATER OPERATION**

**SARAH HAIDRI-HASAN**

Engineer

Malcolm Pirnie, Inc.

5975 Castle Creek Parkway N. Dr., Suite 355

Indianapolis, IN 46250

(317) 594-3735

[shasan@pirnie.com](mailto:shasan@pirnie.com)

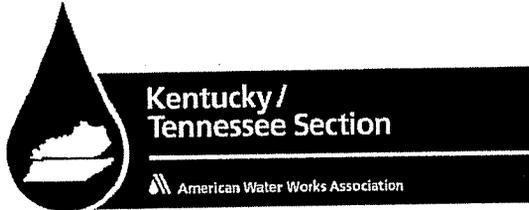
The perception of bottled water as having consistent safety, high quality, good taste and convenient portability is driving consumers away from their taps. An \$8 billion per year industry in America (\$35 billion worldwide), bottled water sales have tripled in the past 10 years and now exceed both coffee and milk in per capita consumption. Ironically, nearly 25 to 40 percent of the bottled-water manufacturers are bottling tap water and offering it at prices 240 to 10,000 times more per gallon.

Recognition of water service and quality, consumer education, outreach, marketing, and revenue are some reasons for the increased interest of municipal drinking water facilities to initiate a bottled water operation. These public water systems, although well-versed in water treatment, are new to the retail-orientated bottled water business and have limited resources available to provide guidance through the decision-making and implementation processes for becoming a water bottler.

Based on the experience of current municipal bottled water programs, implementation of a successful utility-owned operation depends on understanding the following:

- Purpose and scope of the operation
- Regulations for water bottlers
- Water quality and treatment options
- Bottling operation production, capacity, automation, equipment, and packaging
- Cap, bottle, and label materials
- Storage, clean room, and other facility requirements
- Cost

Through discussion and evaluation of these planning elements, this paper will offer guidance and pertinent information to those interested in initiating their own bottled water operation – providing a “roadmap” for success.



<b>Office Use Only</b>
Session #: <u>B</u>
Session/Date/Time: <u>2005 JUL 14 AM 9:50 9/12 10:45 am</u>
Moderator: _____

DRINKING WATER BRANCH

2005 JUL 14 AM 9:50

DIVISION OF WATER

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: 2005 Joint Professionals Conference Presentation

CONFERENCE DATE: Monday September 12, 2005  
10:45 - 11:30 pm; Session: B

PAPER TITLE (128 Characters & Spaces Maximum)  
To Bottle or Not to Bottle: Initiating a Bottled Water Operation

PRESENTATION DESCRIPTION: (up to 30 words)  
This presentation will offer guidance and pertinent information to public water systems interested in initiating their own bottled water operation - providing a "roadmap" for success.

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*  
No additional equipment is needed other than those that will be provided (laptop, projector, and screen).

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Ms. Sarah Haidri Hasan  
*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* Haidri = Hay-dree; Hasan = Has-san

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Engineer  
Company Malcolm Pirnie, Inc.  
Address 5975 Castle Creek Parkway North Dr., Ste. #355  
City Indianapolis State IN Zip 46250

Phone 317-594-0989 Fax 317-594-0185 E-Mail shasan@pirnie.com

**PRESENTER BIO:** (up to 100 words)

Ms. Hasan is a member of Malcolm Pirnie's "Drinking Water Process and Planning Team," specializing in water quality and treatment. Her educational background is in civil and environmental engineering. She completed her bachelor's degree at the University of Iowa, and her master's degree at the University of Illinois at Urbana-Champaign. She is a member of SWE, AWWA, and Water for People.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) n/a

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Christopher S. Cathis	
COMPANY:	Contract Masters, Inc.	
ADDRESS:	360 Jeanne Marie Drive	
CITY/ST/ZIP:	Dover, Ohio 44622	
PHONE:	330-602-8570	
FAX:	330-602-8571	
EMAIL:	ccathis@wilkshire.net	

TITLE OF PAPER (128 characters and spaces maximum):  
Zinc Metallizing for Potable Water Tanks

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
Projects presented were completed in 1960, 1996 and 2000

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
Ohio Section AWWA Nortwest District Fall Meeting 10/13/04

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

## Metallizing for Potable Water Tanks

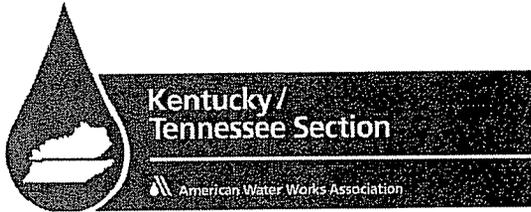
Thermal Spray Coatings (e.g. Metallizing) are often misunderstood and, unfortunately, misconstrued. This presentation aims to educate the audience about metallizing in general with a particular focus on the economic and performance benefits the coating system provides in an immersion/ potable water environment.

The presentation includes:

1. A brief history of the technology.
2. Explanation of the two primary techniques used to apply the coating.
3. Explanation of coating formation and properties.
4. Review of pertinent conclusions reached in the American Welding Society's "Corrosion Tests of Flame-Sprayed Steel: 19-Year Report".
5. Review of the materials used and each of their relative benefits.
6. A comparison between liquid coatings (i.e. paint) and thermal spray coatings.
7. A focused look at zinc metallizing and its beneficial properties for potable water tanks:
  - Proven long term protection
  - Eliminates the need for cathodic protection
  - Prevents pitting
  - Extended coating season (i.e. Owner flexibility)
  - Extended maintenance cycle
  - No drying or curing time
  - No size limitation
  - No warping
8. A brief case history of a water tank (Kugler Mill) metallized by the city of Cincinnati, Ohio (1960) as well as reviews of tanks metallized by the city of Alliance, Ohio (1995) and the Village of Lodi, Ohio (1999).
9. A cost comparison, including both initial application and life cycle costs (LCC) between paint and metallized coatings.

Based on the information presented, the aim is to help tank owners and operators to see that the benefits of zinc metallizing will provide a tremendous opportunity for maintaining structural integrity and savings over the life span a single structure, and an even greater possibility when viewed in the context of a larger multi-tank system.

The goal of the presentation is to educate the audience about metallizing and allow structure owners to make an informed decision when determining paint vs. metallizing systems' performance, associated costs and overall economic viability.



**Office Use Only**

Session #: \_\_\_\_\_

Session Date/Time: \_\_\_\_\_

Moderator: \_\_\_\_\_

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: 2005 Annual KY-TN Section AWWA Joint Water Professional Conference

CONFERENCE DATE: September 11-14, 2005

PAPER TITLE (128 Characters & Spaces Maximum) Zinc Metallizing for Potable Water Tanks

**PRESENTATION DESCRIPTION:** (up to 30 words)

This presentation is designed to give tank owners a general understanding of zinc thermal spray linings and their associated economic and performance benefits as compared to more conventional paint systems.

**AUDIO VISUAL NEEDS:**

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Christopher S. Cathis

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Vice President

Company Metallizing Masters, Inc. Division of Contract Masters, Inc.

Address 360 Jeanne Marie Drive

City Dover State Ohio Zip 44622

Phone 330-602-8570

Fax 330-602-  
8571

E-Mail ccathis@wilkshire.net

**PRESENTER BIO:** (up to 100 words)

Mr. Cathis (BA Studies Kent State University and MA Studies The University of Hawaii at Manoa) works for Metallizing Masters, Inc., a company which has applied thermal spray coatings and linings for over 30 years. He is a member of the AWWA, NACE and SSPC. In addition, he is also a Certified NACE Coatings Inspector #9553 and has SSPC C-1 (Fundamentals of Protective Coatings for Industrial Structures) and C-7 (Fundamentals of Dry Abrasive Blast Cleaning) certification.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

Topic Category: New Technologies or Plant Operations

Area Water

Title of Paper: Ultraviolet Disinfection Design and Operation for Low-pressure High Output (LPHO) and Medium Pressure (MP) Systems

Name: William B. Dowbiggin, P.E., DEE

Company: CDM

Address: 5400 Glenwood Ave., Suite 300

City/St/Zp: Raleigh, NC 27616

Phone: 919-787-5620

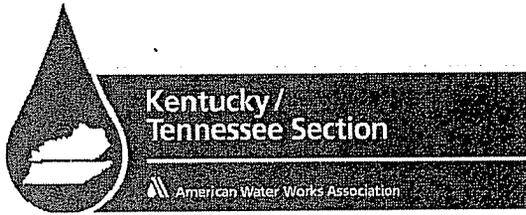
Fax: 919-781-5730

Email: Dowbigginwb@cdm.com

The Stage 2 Microbial and Disinfection Byproduct (MDBP) Rules have reached the point of agreement in principle among the negotiating parties. This allows utilities to better plan for compliance with these upcoming regulations. Two aspects of the Stage 2 Rules encourage the use of ultraviolet (UV) disinfection. The Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) will require utilities with high concentrations of *Cryptosporidium* in their raw water to provide additional inactivation/removal of *Cryptosporidium*, which can be achieved with UV. Another driver is minimizing trihalomethanes (THMs) and haloacetic acids (HAAs). Some utilities may use UV to minimize free chlorine contact time prior to forming chloramines for a residual disinfectant.

In negotiating the Stage 2 regulations, the negotiating parties recognized that the process of UV offers cost-effective benefits. This paper will overview the costs, advantages and disadvantages of this technology and cover the key design and operating issues such as:

- The latest on EPA regulatory guidance and the Calgon patent for UV
- Design criteria for UV disinfection: What dose or intensity multiplied by time "IT" is required, number of units, system layout options, ancillary facilities
- Mixing, monitoring, and maintenance, including lamp cleaning and replacement
- Low-, medium-, and high-intensity and pulsed UV
- Case studies of options and experiences at LPHO and MP Systems
- Source water quality impacts
- Power quality and back-up
- Hydraulic needs, limitations, validation
- Daily, weekly, monthly, yearly O&M requirements
- Examples of Designs and Operational UV Facilities



<b>Office Use Only</b>
Session #: _____
Session Date/Time: _____
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: KY/TN 2005 Water Professionals Conference

CONFERENCE DATE: September 12, 2005

PAPER TITLE (128 Characters & Spaces Maximum)  
"UV Disinfection: Design and Operation  
for LPHO and MP Systems"

PRESENTATION DESCRIPTION: (up to 30 words)  
This is an overview of design and operational considerations for the use of Low-pressure High Output (LPHO) and Medium Pressure (MP) UV Systems for Drinking Water Disinfection

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.)      Mr. William Dowbiggin \_\_\_\_\_

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY x  
I am just coming in for the presentation. Do I need to separately register for one-day?  
Title Vice President

Company CDM

Address 5400 Glenwood Ave.

City Raleigh State NC Zip 27616

Phone 919-787-5620 Fax 919-781-5730 E-Mail dowbigginwb@cdm.com

**PRESENTER BIO:** (up to 100 words)

Mr. Dowbiggin has over 21 years experience in water treatment including over 19 years with CDM. He has designed over 30 major water plant projects ranging from 1 to 225 mgd, has completed ten bench/pilot plant projects, several of which included UV testing. He has taught water plant design at Duke University and UNC and he has assisted in start-up, training and optimization for many water treatment plants.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

**MAIN AUTHOR** (if different from above) same \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

SEP 9 6 2005

FBI - MEMPHIS  
COMMUNICATIONS SECTION

# 2005

**water**

**Professionals  
Conference**

Kentucky/  
Tennessee Section

American Water Works Association

KY  
TN WEA

# SESSION D

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER  COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Richard D. Mielke, P.E.	
COMPANY:	Northwest Pipe Company	
ADDRESS:	10512 New Arden Way	
CITY/ST/ZIP:	Raleigh /NC /27613	
PHONE:	919-847-6077	
FAX:	919-847-5977	
EMAIL:	rmielke@nwpipe.com	

TITLE OF PAPER (128 characters and spaces maximum):

Guide to the Design of Water Transmission Pipelines

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

March 2005

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

ASCE Pipeline Conference Aug. 2004 in San Diego

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

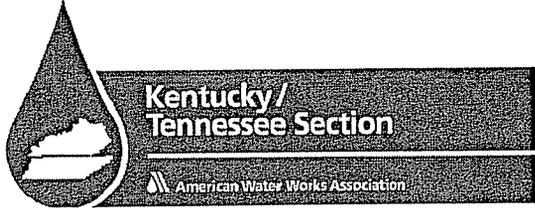
ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

This paper will discuss the current design practices for the primary water transmission products in the Central and Eastern US, steel, ductile iron and concrete. It will detail a more efficient approach to the

design of the pipe materials and the preparation of equal alternate specifications. Many hours are typically spent on the design and preparation of specifications for large water or wastewater transmission lines. Owners expect a design that offers the longest lasting pipeline at the best possible price. Often times the engineer can become overwhelmed on how alternative products can be specified to accomplish these objectives.

Through the use of performance-based specifications via the Pressure Class Approach, many of the problems associated with specifying equal alternative materials can be avoided. More importantly, the owner will receive a pipeline that provides them with the performance criteria they need at a price they are willing to pay. Today, the concrete, ductile iron, and steel industries all embrace the Pressure Class Design Approach. The differences in the design of the three products will be demonstrated using consistent performance criteria as established in the specifications. AWWA design and installation manuals M-9, M-11, and M-41 cover concrete pressure pipe, steel pipe, and ductile iron pipe respectively. The products are also covered by AWWA manufacturing and quality assurance standards. Utilizing these standards in a project's design specifications capitalizes on the hours of work already invested by your industry peers. For the manufacturer to design the most efficient pipe to meet a project's set of requirements, only a few assumptions are necessary with the Pressure Class Design Approach. These include internal pressure (working and transients), external loads (earth and trench loads), collapse pressures (from hydraulic or atmospheric pressures), special physical loading (pipe on supports, if above ground), physical requirements (ability to handle or ship) and appropriate corrosion protection. Combining this information with the contract drawings, manufacturers can provide calculations and line layout drawings.

Finally, the primary corrosion protection options utilized for these water transmission products will be discussed. This paper will demonstrate the Pressure Class Approach procedures and provide useful tools for engineers and owners in the design and specification of water and wastewater transmission lines.



<b>Office Use Only</b>
Session #: <u>  D  </u>
Session Date/Time: <u>  9/13 9:45 AM  </u>
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME:   2005 Joint Professionals Conference  

CONFERENCE DATE:   9-13-05  

PAPER TITLE (128 Characters & Spaces Maximum)  
  "A Guide to the Design of Water Transmission Pipelines"  

PRESENTATION DESCRIPTION: (up to 30 words)  
Presentation will review design practices for concrete, ductile iron and steel water transmission pipe. It will also detail the more efficient Pressure Class design approach including corrosion protection and risk assessment.

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.)   Mr. Richard D. Mielke, P.E.  

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.*   milky  

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title   Region Engineer  

Company   Northwest Pipe Company  

Address   10512 New Arden Way  

City   Raleigh   State   NC   Zip   27613  

Phone   919-847-6077   Fax   919-847-   E-Mail   Rmielke@nwpipe.com

PRESENTER BIO: (up to 100 words)

Rich is a graduate of the Univ. of Minnesota with BSCE. He is a registered PE in the states of MN and NC. Rich has over 25 years experience in the steel pipe industry. His current responsibilities as Region engineer for Northwest Pipe Co include technical support of the sales team and our customers in the proper application, design and installation of steel water pipe. Rich serves on various AWWA technical committees and is an active member of NACE and NCAWWA.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) None

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

**2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE**

**TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM**

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

**TOPIC CATEGORY:**

- CUSTOMER SERVICE & FINANCE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY MANAGEMENT
- 

**PRESENTATION INFORMATION:**

**PRESENTER(S):**

<b>NAME:</b>	Brian Fuchs	
<b>COMPANY:</b>	Calgon Carbon Corp.	
<b>ADDRESS:</b>	1 Top of the Oaks	
<b>CITY/ST/ZIP:</b>	Chadds Ford, PA 19317	
<b>PHONE:</b>	610-358-4733	
<b>FAX:</b>	412-787-6790	
<b>EMAIL:</b>	bfuchs@calgoncarbon-us.com	

**TITLE OF PAPER (128 characters and spaces maximum):**

**Greensand Replacement Media-Alternative Solution for Removal of Iron and Manganese-Pilot and Full Scale Data**

**DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:**

\_\_\_\_\_

**IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:**

\_\_\_\_\_

**IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:**

**ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.**

**ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)**

**Abstract:**

Greensand filter media has been the media of choice for Iron and Manganese removal applications for many years. However, stricter regulations for contaminant removal and recent constraints on greensand availability have led to newer medias to be investigated as a replacement alternative.

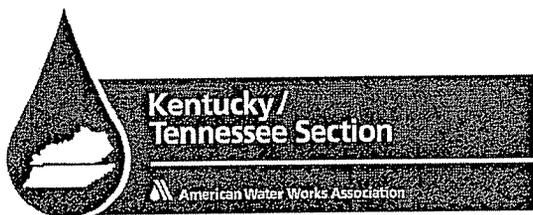
Calmedia Plus is a manganese dioxide coated granular filter media providing a unique active surface coating that oxidizes and precipitates soluble iron and manganese species, and, if present, oxidizes hydrogen sulfide to sulfur. The oxidized and precipitated products are filtered out in the Calmedia GSR Plus bed. Calmedia GSR Plus is also used as a multi-contaminant removal technology for Arsenic and Radium

This is a discussion of Calmedia GSR Plus pilot work and full scale results from work performed at several water plants across the United States, including South Bend, Indiana.

**Bio for Brian Fuchs:**

**Brian Fuchs – Municipal Sales Specialist**

Mr. Fuchs has 12 plus years experience in the municipal drinking water and wastewater treatment industry as a chemical application specialist. Mr. Fuchs has extensive hands-on experience providing treatment solutions for meeting current and new drinking water and wastewater regulations. This work includes laboratory, pilot and full-size applications. Mr. Fuchs experience includes techniques for coagulation/flocculation, corrosion control for Lead/Copper, Iron/Manganese removal, pH adjustment, dewatering and specialty applications, such as Arsenic, Radium and Perchlorate removal. Mr. Fuchs has been instrumental in developing performance criteria for various drinking water applications, both carbon based and non-carbon based media technologies. These applications include Taste and Odor, TOC removal to reduce DBP's (THM and HAA5) and most recently has headed the commercialization of Calgon's Iron and Manganese removal technology. Mr. Fuchs has a B.S. in Architectural Technologies from the New York Institute of Technology (Old Westbury, NY) and has studied chemistry at University of Delaware. Mr. Fuchs is currently pursuing his EMBA at the University of Delaware (Class of '06).



Office Use Only

Session #: D

Session Date/Time:

9/13 9:45-11

Moderator: \_\_\_\_\_

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: Water Professionals Conference

CONFERENCE DATE: Tuesday, 9/13 at 9:45 am in Track D.

PAPER TITLE (128 Characters & Spaces Maximum)

"Greensand Replacement Media : Alternative  
Solution to Removal of Iron and Manganese--Full Scale Data"

PRESENTATION DESCRIPTION: (up to 30 words)

Will provide a demonstrated option for Iron and Manganese removal and offer potential for other  
contaminants. Also include an introduction to the process and a review of operating treatment systems.

**AUDIO VISUAL NEEDS:**

*A laptop computer, projector and screen will be provided in each session room. Additional equipment  
needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Brian Fuchs

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator  
during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title New Applications Consultant

Company Calgon Carbon Corporation

Address 400 Calgon Carbon Drive

City Pittsburgh State PA Zip 15205

Phone 412-7876764 Fax 412-787-6713 E-Mail bfuchs@munichem.  
com

**PRESENTER BIO:** (up to 100 words)

Mr. Fuchs has 13 years experience in the water and wastewater treatment industry. Experience includes pilot scale simulations and full scale process optimization of: coagulation/flocculation, corrosion control, Iron/Manganese removal, pH adjustment, disinfection, sludge dewatering, odor control, and specialty applications. Mr. Fuchs has been instrumental in developing performance criteria for chemical and filter media technologies. Most recently Mr. Fuchs headed the commercialization of Calgon's Iron and Manganese removal technology for CalMedia GSR Plus. Education includes: B.S. in Architectural Technologies -New York Institute of Technology, chemistry courses and progression to an MBA - University of Delaware.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

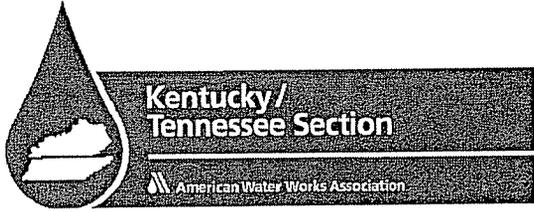
**Topic Category:** Water Quality  
**Area:** Wastewater and water  
**Title of Paper:** Developing a Distribution System Model and Water Quality Management Plan Conjunctively with Meeting Regulatory Compliance  
**Name:** Kevin C. Irby, P.E., and William B. Dowbiggin, P.E.  
**Company:** CDM  
**Address:** 5400 Glenwood Avenue, Suite 300  
**City/State/Zip:** Raleigh, North Carolina 27612  
**Phone:** (919) 787-5620  
**Fax:** (919) 781-5730  
**Email:** irbykc@cdm.com and dowbigginwb@cdm.com

### **Abstract**

In recent years, the water supply industry and the general public have become increasingly interested in the quality of water in their distribution systems. Correspondingly, the United States Environmental Protection Agency (EPA) has been developing standards that focus attention on the quality of the water at the customers' tap in addition to their historical standards that emphasize the quality of water leaving the water treatment plant (WTP). In particular, the Stage 2 Disinfection Byproducts Rule will require particular focus by water purveyors on water quality at all points in the distribution system.

The science of understanding the specific changes that occur to a drop of water between the water treatment plant and the customer's tap cannot be precisely documented. However, as potable water purveyors and engineers, we can document specific practices and protocols that can greatly enhance the quality of water delivered to our customers and our families. CDM's recommended approach suggests taking a holistic look at all of the things that impact water quality. The quality of water in a distribution system is a result of the operating strategy of the overall system: from the raw water sources, through a utility's WTP(s), until its final destination at each customer's home or business.

The presentation will discuss the various elements involved in effectively operating water distribution systems. These include a calibrated water distribution system model; operations and maintenance activities performed on the distribution system; operating strategy for the WTP based on raw water quality, operating both the WTP and distribution system infrastructure based on temperature variations and demand variations; and regulatory sampling and monitoring. The presentation will also present guidance related to Stage 2 - IDSE compliance, and use of distribution system modeling for overall water quality management and assistance with regulatory compliance.



<b>Office Use Only</b>
Session #: <u>  D  </u>
Session Date/Time: <u>  9/13 10:45  </u>
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME:   2005 Joint Professionals Conference  

CONFERENCE DATE:   September 13, 2005  

PAPER TITLE (128 Characters & Spaces Maximum)      **Developing a Distribution System Model and Water Quality Management Plan Conjunctively with Meeting Regulatory Compliance**

**PRESENTATION DESCRIPTION:** (up to 30 words)

Will present concepts and approaches to meeting both upcoming Stage 2 regulatory requirements and maximizing general water distribution system water quality

**AUDIO VISUAL NEEDS:**

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.)      Mr. Kevin Irby

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.*        (ur-bee)  

CONFERENCE REGISTRATION STATUS:    FULL     ONE-DAY

Title   Project Manager and Area Water Distribution System Initiative Leader  

Company   CDM  

Address   5400 Glenwood Ave, Suite 300

City Raleigh State NC Zip 27612

Phone 919.787.5620 Fax 919.781.5730 E-Mail irbykc@cdm.com

**PRESENTER BIO:** (up to 100 words)

Kevin received both a BS and ME from Old Dominion University. He has over 11 years of experience assisting municipalities with water and wastewater planning and system design. In recent years he has focused on modeling and operation and maintenance of municipal water distribution systems for water quality purposes and regulatory compliance and serves as CDM's area Initiative Leader for Water Distribution related projects.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

## Abstract

### Distribution Disinfection and Supply Changes to Improve Water Quality and Quantity in Kentucky American's Northern Division

Jan C. Róutt  
Richard Svindland  
David Shehee  
Kentucky American Water  
2300 Richmond Road  
Lexington, Kentucky  
859-335-3662  
jroutt@kawc.com

This presentation will describe Kentucky American Northern Division experiences, studies, & plans to modify disinfection and operations facilities and practices over recent years. Changes have been targeted at addressing multiple objectives of adequate supply, disinfection and disinfection byproducts control in distributed waters from multiple sources.

Presentation & discussions will include detailed case study descriptions from Kentucky American's Northern Division operations:

System overview—geography, hydraulics, water qualities from multiple sources

Chemistry of chlorine and chloramines and disinfection byproducts

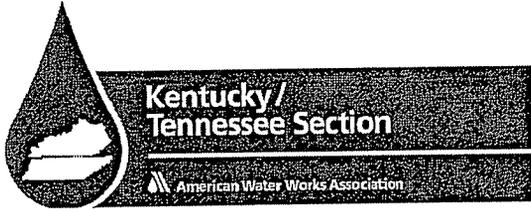
Microbiology of disinfection and nitrification

Decision making processes, studies, design & operations plans in converting one supply to chloramines.

Decision making processes, studies, design and operations in converting from chloramines to free chlorine in distribution using booster chlorination.

Breakpoint chlorination studies of chloraminated waters.

Long term operations plan using free chlorinated and chloraminated waters in the same distribution system to maintain disinfection, minimize DBPs and ensure supply.



<b>Office Use Only</b>
Session #: <u>0</u>
Session Date/Time: <u>9/13 1PM</u>
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: Joint Water Professionals

CONFERENCE DATE: September 13, 2005

PAPER TITLE (128 Characters & Spaces Maximum)  
"Distribution Disinfection and Supply Changes to Improve Water Quality and Quantity in KAW's Northern Division

PRESENTATION DESCRIPTION: (up to 30 words)  
Case study of City of Owenton's and Kentucky American's Northern Division five years of work to control disinfection byproducts in an expanding system with multiple sources 1) overview—geography, hydraulics, water qualities from multiple sources, 2) decision-making processes, studies, leading up to converting the Owenton supply to chloramines; 3) decision-making processes, studies, design and operations in breakpoint free chlorination of chloramines within the distribution system.

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mrs. Jan C. Routt

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Jan C. Routt

Company Jan Routt & Associates, LLC

Address 3636 Timberwood Lane

City Lexington State KY Zip 40515

Phone (859) 971-0858 Fax \_\_\_\_\_ E-Mail jroutt@alltel.net

**PRESENTER BIO:** (up to 100 words)

Ms Routt's degree is from the University of Kentucky in microbiology. She is a Certified Drinking Water operator in Kentucky and attained Drinking water operator certification in West Virginia during her work there in the 90's. She has 21 years working in all aspects of drinking water quality control from source management to treatment to distribution operations in over 50 utilities primarily in the American Water System's southeast region states. She has been active in the leadership of Partnership for Safe Water and the AWWA Water Quality and Technology Division and its committees. She has coordinated national disinfection surveys and has authored reports for Journal AWWA and is currently contributing to EPA development of new regulations and guidance for disinfection byproduct control in consecutive systems. Her work with the KAW Northern Division and Owenton to control disinfection byproducts, while maintaining overall water quality and supply, has spanned 6 years. This is the 5th state or national presentation which prepared to share this work. A summary of the Owenton disinfection changes to control disinfection byproducts has also been solicited for inclusion in the new EPA Guidance Manual for Simultaneous Compliance.

**CO-PRESENTER**

Mr. Svindland has a Bachelor's degree in Civil Engineering from Georgia Tech and a Masters from the University of Kentucky. He is a registered Professional Engineer in Kentucky and Georgia with over 15 years of experience designing water and wastewater facilities. He has served as the lead Engineer for Kentucky American Water's Northern Division, including installation of over 50 miles of new main, a new standpipe, and a chlorine breakpoint booster station. He currently serves as the Technical Services Manager for American Water's Southeast Region.

NAME (please note Mr., Mrs., Ms., or Dr.) Mr. Richard C. Svindland, PE

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Technical Services Manager, Southeast Region

Company American Water

Address 2300 Richmond Road

City Lexington State KY Zip 40502

Phone (859) 335-3833 Fax (859) 268-6327 E-Mail rsvindland@kawc.com

**CO-PRESENTER**

Mr. Shehee has a Bachelor's degree in Chemistry from Berea College and a Master's in Chemistry from Eastern Kentucky University. He is a Class IV Certified Water and Class II Certified Wastewater Operator. He is the Water Quality Specialist for Kentucky American Water and has been involved in Owenton Water's treatment changes and improvements for 6 years. He has worked with Kentucky American's Northern Division since its inception and has been an integral part of incorporating changes in the distribution system, including the startup of the chlorine booster station.

NAME (please note Mr., Mrs., Ms., or Dr.) Mr. David B. Shehee

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Water Quality Specialist

Company Kentucky American Water

Address 6300 Cedar creek Lane

City Lexington State KY Zip 40515

Phone (859) 335-3660 Fax (859) 263-3137 E-Mail [dshehee@kawc.com](mailto:dshehee@kawc.com)

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANCE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S): *Patrick Brown substitute speaker*

NAME:	<del>Gregory R. "Chip" Stein, P.E.</del>	
COMPANY:	Tank Industry Consultants	
ADDRESS:	7740 West New York Street	
CITY/ST/ZIP:	Indianapolis, Indiana 46214	
PHONE:	(317) 271-3100	
FAX:	(317) 271-3300	
EMAIL:	stein@tankindustry.com	

TITLE OF PAPER (128 characters and spaces maximum):

New Tank Construction  
A Case Study of Successful Projects

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

on-going

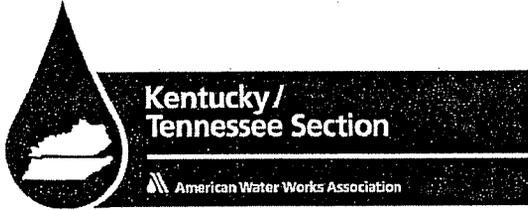
IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

being presented at several AWWA Section Conferences

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)



<b>Office Use Only</b>
Session #: <u>0</u>
Session Date/Time: <u>9/13 1:30</u>
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: 2005 KY/TN Water Professionals  
CONFERENCE DATE: Sept 11-14, 2005 Conference

PAPER TITLE (128 Characters & Spaces Maximum)  
"New Tank Construction, A case study of Successful projects."

PRESENTATION DESCRIPTION: (up to 30 words)  
This presentation will take the audience through several case studies of new tank construction projects. New technology and up-coming standards will be explained as each tank project unfolds.  
AUDIO VISUAL NEEDS:  
A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Patrick Brown

If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions. \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Project Designer  
Company Tank Industry Consultants  
Address 7740 West New York Street  
City Indianapolis State IN Zip 46214  
Phone 317-271-3100 Fax 317-271-3800 E-Mail brown@tankindustry.com

PRESENTER BIO: (up to 100 words)

See attached

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) Gregory "Chip" Stein, P.E.

Title Vice President

Company Tank Industry Consultants

Address 7740 West New York Street

City Indianapolis State IN Zip 46214

Phone 317-271-3100 Fax 317-271-3300 E-Mail Stein@tankindustry.com

**Patrick J. Brown, E.I.**  
*Engineer*  
**Tank Industry Consultants**



**Education**

B.S., Chemical Engineering -  
Rose-Hulman Institute of  
Technology

**Registrations**

E.I.  
State of Indiana

**Professional Affiliations**

SSPC: The Society for Protective  
Coatings

National Society for Black  
Engineers

American Institute of Chemical  
Engineers

Omega Chi Epsilon (Chemical  
Engineering Honors  
Fraternity)

Patrick Brown joined Tank Industry Consultants in 1998 after receiving his Bachelor of Science degree in Chemical Engineering from Rose-Hulman Institute of Technology. Patrick has served as engineer on a wide variety of projects including design and specification of new tanks, structural evaluation of tanks, rehabilitation of existing tanks, and tank demolition. These projects typically included surface preparation, coating methods, procedures, and types of coatings; sanitary upgrades; safety upgrades; structural repairs; lead abatement with containment and environmental controls.

As a project engineer, Patrick assists with field evaluations and has been responsible for preparing detailed tank evaluation reports for over 100 tanks.

Patrick has also successfully completed the SSPC (formerly known as the Steel Structures Painting Council) course *CI Fundamentals of Protective Coatings for Industrial Structures*.

**2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE**

**TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM**

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

**TOPIC CATEGORY:**

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

**PRESENTATION INFORMATION:**

**PRESENTER(S):**

<b>NAME:</b>	Nick Winnike	
<b>COMPANY:</b>	CH2M HILL	
<b>ADDRESS:</b>	4520 Cooper Road, Suite 200	
<b>CITY/ST/ZIP:</b>	Cincinnati, OH 45242	
<b>PHONE:</b>	513-745-0079	
<b>FAX:</b>	513-745-0803	
<b>EMAIL:</b>	nicholas.winnike@ch2m.com	

**TITLE OF PAPER (128 characters and spaces maximum):**

**Selecting the Optimum Solution for Retrofitting UV Treatment into a Large WTP**

**DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:**

**Study was completed June, 2004**

**IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:**

**The paper will be presented at the AWWA Annual Conference & Exposition**

**IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:**

**ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.**

**ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)**

Selecting the Optimum Solution for Retrofitting UV Treatment into a Large WTP  
Presenter: Nick Winnike

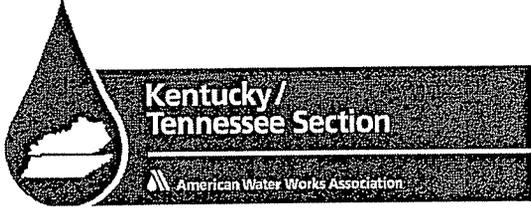
In its pursuit of technologies that provide the best water and service to its customers, the Greater Cincinnati Water Works (GCWW) is evaluating ultraviolet (UV) disinfection as a technology for meeting customer expectations and future regulations. The GCWW has completed desktop and laboratory studies of UV disinfection for GAC Contacted Water at the Richard Miller Treatment Plant (RMTP). The studies concluded that UV disinfection technology is a viable element of a multiple barrier approach to disinfection against *Cryptosporidium* and other waterborne pathogens without increasing disinfection by-products and biological regrowth.

Once it was confirmed that UV would be effective it was necessary to establish the feasibility of fitting a UV system in the existing footprint and hydraulic profile. A study was conducted to assess the feasibility and to select the UV technology and optimum location for UV treatment.

The hydraulic evaluations, cost-effectiveness analysis of alternative UV technologies and locations in the plant flow compared the respective efficiencies of UV equipment currently available, power usage, size of footprint and space requirements, and capital and operations and maintenance costs of low pressure high output to medium pressure systems. Among available technologies, only three proven UV units are offered in sizes suitable for installation in a facility treating up to 240 mgd, the maximum flow rate for the RMTP UV system. A cost-benefit analysis was conducted on the three units. The annualized cost includes allowances for capital costs of equipment purchase and installation and for operation and maintenance costs. The benefit ranking system was developed. Detailed evaluation criteria were identified and the relative importance of each subcriterion and criterion was established. The analysis indicated that within the range of the manufacturer estimates, all three systems evaluated could be implemented cost-effectively at RMTP and should be considered in the final acquisition of UV equipment.

The hydraulic feasibility of adding UV technology to the existing treatment processes was addressed. Plant hydraulic conditions were analyzed using both conventional and CFD models. It was determined that a UV treatment facility could be added to the treatment train downstream of the GAC facility without the need for additional pumping.

A series of cost-benefit analyses was conducted to determine the optimum location with the best cost-benefit score for the UV facility in the treatment train. The benefit scoring built on the process developed for analysis of the UV technologies and was expanded to address issues related to location. Initial and life cycle costs were considered in the evaluation, along with noneconomic criteria including a variety of parameters related to water quality, operations, reliability, maintenance, and flexibility.



<b>Office Use Only</b>
Session #: <u>  D  </u>
Session Date/Time: <u>  9/13 3:00pm  </u>
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME:   Water Professionals Conference  

CONFERENCE DATE:   September 2005  

PAPER TITLE (128 Characters & Spaces Maximum)  
  Selecting the Optimum Solution for Retrofitting UV Treatment into a Large WTP  

PRESENTATION DESCRIPTION: (up to 30 words)  
  Evaluated UV at a 240 mgd surface water plant. Included analysis of hydraulic and spatial fit and evaluated both low and medium pressure systems. More than 20 cost/benefit variables were considered  

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*  
  No additional needs beyond the Power Point presentation equipment.  

PRESENTER (please note Mr., Mrs., Ms., or Dr.)   Mr. Nick Winnike  

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.*   Win a key  

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title   Vice President  

Company   CH2M HILL  

Address   4520 Cooper Road, Suite 200  

City   Cincinnati   State   OH   Zip   45242  

Phone   513-745-0079   Fax   513-745-0803   E-Mail   nwinnike@ch2m.com

PRESENTER BIO: (up to 100 words)

Mr. Winnike is a Professional Engineer and served as the project manager of the UV evaluation study. His career with CH2M HILL has spanned over 26 years including water and wastewater conveyance and treatment studies and designs.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Marcus Knight/ YP Committee	
COMPANY:	Metro Water Services	
ADDRESS:	1616 3 <sup>rd</sup> Avenue North	
CITY/ST/ZIP:	Nashville, TN 37208	
PHONE:	615-862-4868	
FAX:		
EMAIL:	marcus.knight@nashville.gov	

TITLE OF PAPER (128 characters and spaces maximum):  
Young Professionals Panel Discussion - Lessons Learned

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
Not applicable

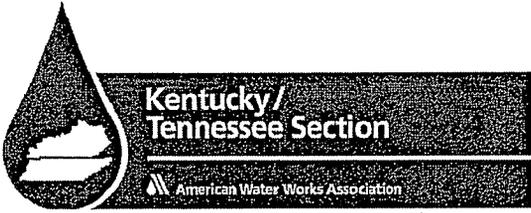
IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
Not applicable

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

This session will be targeted for young professionals and will consist of a panel discussion involving approximately three to four selected speakers with considerable experience and knowledge concerning

different aspects of water production, distribution, management and customer service. Each member of the panel will be given an opportunity to impart thoughts that they feel will be of benefit for young professionals beginning their careers in the industry. Additionally, the discussions may include insights about the direction that a career can take and also ways of preparing oneself for a satisfying and rewarding career. Subsequent to each speaker providing their thoughts, the floor will be opened for questions from the attendees. A subsequent session is requested for a social event allowing young professionals to network and to provide opportunities for one-on-one discussions with the panel members.



<b>Office Use Only</b>
Session #: <u>  D  </u>
Session Date/Time: <u>  9/13  3:45  </u>
Moderator: _____

**Kentucky/Tennessee Section AWWA**  
**Speaker Introduction Form**

CONFERENCE NAME:   Water Professionals Conference  

CONFERENCE DATE:   September 11 – 14 2005  

PAPER TITLE (128 Characters & Spaces Maximum)  
  Young Professionals Panel Discussion: Lessons Learned  

PRESENTATION DESCRIPTION: (up to 30 words)  
  Panel discussion addressing issues that might be of interest to young professionals. Provide insights into lessons learned and how to better prepare oneself for a rewarding and fulfilling career.  

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*  
  No additional audio visual needs.  

PRESENTER (please note Mr., Mrs., Ms., or Dr.)   Mr. Marcus Knight  

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.*  
  \_\_\_\_\_  

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title   Engineer 2  

Company   Metro Water Services  

Address   1616 Third Avenue North  

City   Nashville   State   Tn   Zip   37208  

Phone   615-862-4868   Fax \_\_\_\_\_ E-Mail   Marcus.knight@nashville.gov

PRESENTER BIO: (up to 100 words)

Mr. Knight earned his Bachelor of Science and Master of Science Degrees in Civil Engineering from Tennessee Technological University and is currently working toward a Ph.D. in Civil Engineering at Vanderbilt University. He is a registered engineer in Tennessee and is currently employed with Metro Water Services in Nashville, Tennessee where he manages the water maintenance section that is responsible for replacement and routine testing of fire hydrants, a cross connection program, and placing new infrastructure into service. In addition to his work at Metro Water Services, Mr. Knight worked as a consulting engineer for approximately 4 years.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

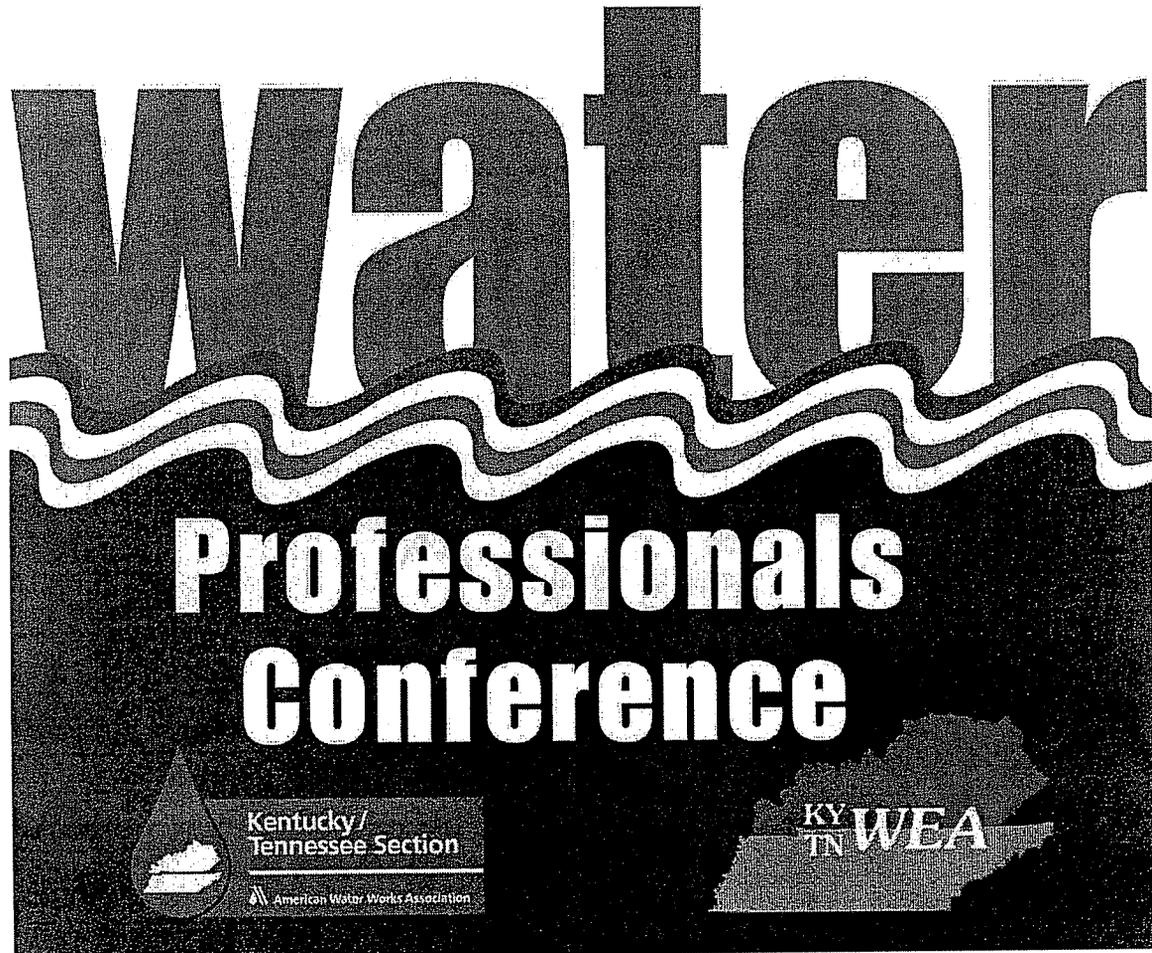
Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

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MEMBERSHIP  
DEPARTMENT

# 2005



# Water

## Professionals Conference

 Kentucky/  
Tennessee Section

 American Water Works Association

 KY  
TN WEA

# SESSION F

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE &  
FINANACE  
 SAFETY AND SECURITY  
 SMALL SYSTEMS  
 PLANT OPERATIONS  
 DISTRIBUTION  
 RESEARCH

- ENGINEERING &  
CONSTRUCTION  
 PUBLIC INFORMATION  
 WATER RESOURCES &  
CONSERVATION  
 WATER QUALITY  
MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Eric Ayers, G Seetharam	Sherry Dukes
COMPANY:	Louisville Water Company	
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CITY/ST/ZIP:	Louisville, KY 40202	
PHONE:	502-569-0834	
FAX:	502-569-0810	
EMAIL:	eayers@lwcky.com	

TITLE OF PAPER (128 characters and spaces maximum):

Selecting and Implementing an Mobile Dispatch System

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

August 2004

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

Not presented elsewhere.

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE  
EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005  
JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental  
material will be accepted)

The Louisville Water Company has recently procured and implemented a Mobile Dispatch System in a portion of its operations. The project team will present a talk giving a general overview of the project and discussing lessons that were learned during this implementation. This presentation can be done in one 45 minute session or in two back to back 45 minute sessions.

Outline of topics to be covered.

#### I. Why you should consider a Mobile Dispatch System

A mobile dispatch system will enable your organization to provide better customer service at lower costs.

For purposes of our discussion a Mobile Dispatch System is a computer system that will move service orders to and from your host Customer and Facility Information Systems to and from your field workers using laptops or PDA's via wireless communication.

Customers expect information faster today than ever before. If you have employees that are performing work for customers, quickly updating your host customer system will help you to appear smart and efficient while doing the same field work that you've always done. Updates will no longer have to wait until the end of the work day or for a voice transmission of activities, the mobile dispatch system will update the host system within moments of the work being completed. Customers will take notice when your mobile dispatch program makes it easier to create and keep tight appointment windows and when updated information is available almost immediately.

You will help your bottom line right away when you turn time that was spent sorting service orders, routing work and updating work in your computer system into completed units of production. Field technicians can start working as soon as the work day begins and can continue working up to the final minutes of the scheduled shift. Your office personnel will no longer perform redundant data entry and instead will monitor work and add value to the customer service process.

A mobile dispatch system will give your organization to opportunity to save costs by increasing the amount of value added time work and will let you more rapidly provide accurate information to your customers.

#### II. What you should consider before purchasing a Mobile Dispatch System.

Create a team of managers and knowledge workers that will build a vision for how the system can and will work. This should include, at a minimum, a high level manager that will champion the project and help the team obtain the necessary resources, a technical leader from your Information Technology area, someone with experience in dispatch operation(s) and someone with experience from your field worker group(s). The team should research the mobile dispatch market to find out what products are available and to get a vision of the possibilities. This team will have to be able to balance the knowledge of how things work right now and how things will work better in the future of mobile dispatch.

Create maps your work processes and paper work flows. This will take some time and considerable effort; however, the payback will be large. Mapping your work flows and processes will enable you to redesign the processes before they are automated. It does not make sense to automate an inefficient process. The maps will also be a useful tool in determining how much you can adapt to the new software.

Develop a business case to estimate what the Mobile Dispatch System will accomplish for you. Efficiency should correspond to lower overtime or less personnel working on the function in question. Dispatch resources can probably be redirected to other work. These actions will help you recoup your investment in the system.

#### III. How to Build a Better RFP

Build a Request for Proposal (RFP) that clearly states when your requirements. It will be best to segment your requirements into three categories. First, list the features that you absolutely must have (like the

ability to interface with your CIS). Second, list the features that are important but that are not a show stopper if they aren't available. Finally, list the features that you'd be thrilled to get, but aren't critical to the success of the new system. Use a point system that will allow you to evaluate the system based on these requirements, desires and wishes. Don't forget that financial considerations will be significant.

#### IV. Developing a Hardware Plan

Your organization will need to develop a hardware plan that will consider many different options. Servers to run the applications will need to be designed and specified prior to procurement. In the field technician vehicles you'll need to make decision regarding the appliance that will be utilized (laptop, pda, etc.) as well as mounting equipment, power supply needs and GPS installation.

#### V. Data mapping and interface design

Using your process maps and work flow diagrams are a good way to start building the interface from your mobile dispatch system to your host CIS or CMMS systems. The interface allows these programs to talk to each other. Interface design is complex and critical. This is the major area in your project that will bring you in on time and under budget or cause delays that are not easy to explain.

#### VI. Training your users

Training your users is a critical function. If you are moving from a paper system to mobile dispatch training will be needed for basic computer use, through the application itself. There should be three training tracts, one for field users, one for dispatchers that will include all the field user information and one for application / system administrators.

Timing of the training is also very important. Basic computer training can be early, however, training on the Mobile Dispatch System should take place right before beginning to use the system in production.

#### VII. Testing your system

A rigorous test plan should be developed and fully exercised before placing the system into production. This is a great place to introduce and develop expertise among key dispatchers and field users by having them participate in the testing.

#### VIII. Planning Your Go Live Date

Taking a new system live is a large undertaking. This should be a planned activity that will run smooth and seamless. Consider going live in stages rather than all at once. Running duplicate (paper and electronic) systems for a week is a good safeguard and will make the new users more comfortable.

#### IX. Support and adjust

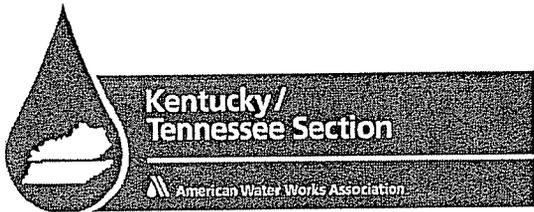
No matter what anyone tells you there will be issues. How you respond to these issues is as important as anything else in the success of your project. It is vital that you establish and clearly communicate how to report problems, who is responsible to assist and how adjustments will be accomplished. During the go-live stage, the project team will be the major supporting cast, however, over time the operating area will have to assume most of the troubleshooting, supported by IT and the vendor.

#### X. Is It Worth all the Trouble?

We know that this sounds like a lot of work, but the payoff can be huge. How much work is worth faster and more accurate information in your systems? How much should be expend to provide more reliable service for your customers? Some of these payoffs cannot be quantified on the bottom line. However, improved routing for field activities will save money on fuel and vehicle wear as well as making employees

more productive. Getting more units in a work day will save you money in labor dollars. Focusing dispatchers on global customer needs rather than data entry will make your company smarter, stronger and better able to satisfy your customer.

#### XI. Questions and Answers



<b>Office Use Only</b>
Session #: <u>E</u>
Session Date/Time: <u>9<sup>00</sup> 9/13</u>
Moderator: _____

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: KY/TN AWWA Sectional

CONFERENCE DATE: September 11, 2005

PAPER TITLE: Selecting and Implementing  
a Mobile Dispatch System

### PRESENTATION DESCRIPTION:

A case study of a Mobile Dispatch System  
selection and Implementation at the Louisville  
Water Company.

### AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

none.

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Eric D. Ayers

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL

Title Manager of Distribution Operations, Maintenance and Capital  
Construction

Company Louisville Water Company

Address 550 S. Third Street

City Louisville State KY Zip 40202

Phone 502.569.0834 Fax 502.569.0810 E-Mail eayers@lwcky.com

PRESENTER BIO: The presenter has been an employee of the Louisville Water Company for over twenty years.  
Eric began work with LWC as a general laborer and spent 10 years in field work. Since then he has worked in several supervision and management capacities and served as the business lead on the Mobile Dispatch project.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) Mr. G. Seetharam

CONFERENCE REGISTRATION STATUS: Not attending

Title Project Manager

Company Louisville Water Company

Address 550 South Third Street

City Louisville State KY Zip 40202

Phone 569.3600x2234 Fax \_\_\_\_\_ E-Mail gseetharam@lwcky.com

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER  POSTER

AREA OF CONSIDERATION:  WATER  COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANCE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH
- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Aileen Katcher	Martha Segal
COMPANY:	Katcher Vaughn & Bailey Public Relations	Metro Water Services
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CITY/ST/ZIP:	Brentwood, TN 37207	Nashville, TN 37208
PHONE:	(615) 248-8202	(615) 862-4626
FAX:	(615) 248-8120	(615) 862-4837
EMAIL:	akatcher@kvbpr.com	martha.segal@nashville.gov

TITLE OF PAPER (128 characters and spaces maximum):  
Clearing the Clog: How to Use Research to Clear the Way for Better Communications

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
Project was completed in 2004.

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
Public Relations Society of America (PRSA) 2004 International Conference, Oct. 26, 2004, New York, NY  
Belmont University Public Relations Class, Oct. 12, 2004, Nashville, TN

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

## 2005 Kentucky-Tennessee Joint Professionals Conference

Aileen Katcher, APR, Fellow PRSA, partner of Katcher Vaughn & Bailey Public Relations, and Martha Segal, Assistant Director, Customer Services for Metro Water Services (MWS), will present a best practices case study of how MWS used research to improve customer service to its commercial customers, including plumbers, contractors, engineers and architects.

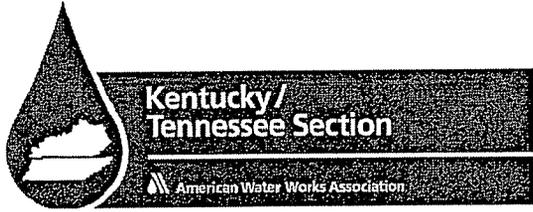
“Clearing the Clog: Using Research to Clear the Way for Better Communications” is a comprehensive look at the steps the water utility took to get closer to its commercial customers and their needs.

During the session, Katcher and Segal, will discuss and share, via a PowerPoint presentation, how to design, implement and translate cost-effective, primary research into a customer service action plan to reach key markets. Research doesn't have to be complex or expensive to be useful.

In 2003, MWS had key issues with customer service to its commercial customers that needed to be addressed. Research and follow-up surveys helped determine which areas of customer service needed to be changed and how. MWS successfully utilized the results of its research to implement operational and communications changes to increase both efficiency and customer satisfaction. The primary research and the outcomes of that research took place in 2003 and 2004, but MWS is still seeing the benefits of the project today.

Katcher and Segal will review the initiatives the water utility enacted and what the results were. Benefits of the research included identifying ways to simplify the process, learning to be more flexible, finding a need to be more consistent, and the discovery of ways to communicate more effectively with commercial customers. Some of the customer service initiatives implemented by MWS included standardized procedures, a better phone system to handle call intake, expediting plan reviews and adding more knowledgeable staff. New tools of the trade that resulted from the research included an advisory council, quarterly newsletter, handbooks and a web site.

Determining ways to “clear the clog” should be a priority for all water utilities that want to meet their commercial or other customers' needs.



<b>Office Use Only</b>
Session #: <u>F</u>
Session Date/Time: <u>9/13 9:45AM</u>
Moderator: _____

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: 2005 Kentucky-Tennessee Joint Professionals Conference

CONFERENCE DATE: Sept. 11 – 14, 2005

PAPER TITLE (128 Characters & Spaces Maximum) "Clearing the Clog: How to Use Research to Clear the Way for Better Communications"

PRESENTATION DESCRIPTION: (up to 30 words) "Clearing the Clog" is a comprehensive look at the steps one water utility took to get closer to its commercial customers and their needs.

### AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Ms. Aileen Katcher (pronounced: Eileen Catcher)  
*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Partner

Company Katcher Vaughn & Bailey Public Relations

Address 5141 Virginia Way, Suite 420

City Brentwood State TN Zip 37027

Phone (615) 248-8202 Fax (615) 248-8120 E-Mail akatcher@kvbpr.com

PRESENTER BIO: (up to 100 words)

Aileen Katcher is a founding partner of Katcher Vaughn & Bailey Public Relations, a Nashville-based public relations firm. She has 30 years of experience in communications and marketing. Earning accreditation from the Public Relations Society of America in 1983, Aileen is a member of the PRSA College of Fellows and a former board member of the National PRSA.

Martha Segal is an Assistant Director with Metro Water Services in Nashville TN. She is a member of the AWWA and is a **past** Chair of the KY/TN AWWA Customer Service Committee. Her committee established and implemented a Customer Service Track for the annual meeting in 2003.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) Ms. Martha Segal

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Assistant Director

Company Metro Water Services

Address 1700 3<sup>rd</sup> Ave. North

City Nashville State TN Zip 37208

Phone (615) 862-4626 Fax (615) 862-4837 E-Mail martha.segal@nashville.gov

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE &  
FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING &  
CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES &  
CONSERVATION
- WATER QUALITY  
MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Ted Niemann	
COMPANY:	Louisville Water Company	
ADDRESS:	550 S. Third Street	
CITY/ST/ZIP:	Louisville, KY 40202	
PHONE:	502-569-3661	
FAX:	502-569-2691	
EMAIL:	tniemann@lwcky.com	

TITLE OF PAPER (128 characters and spaces maximum):

Customer Focus Helps Construct 36" Main Through Neighborhood

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

August 2005

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

\_\_\_\_\_

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

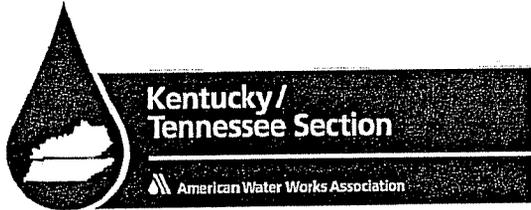
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE  
EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005  
JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental  
material will be accepted)

Abstract  
Ted Niemann  
February 4, 2005

## Customer Focus Helps Construct 36" Main Through Neighborhood

A 36" Water main was designed to provide a parallel supply to a 60" transmission main. The preferred route was through a neighborhood with a single entrance, expensive homes and high rock. The engineering design focused on issues including the protection of homes and utilities during blasting, a river crossing, steep slopes and a tap on a 60" concrete water main. During construction a customer service focus helped minimize construction complaints during construction of the 36" water main. Multiple public meetings, a landscaping plan, a weekly email update, a dedicated webpage and other outreach methods were utilized to allay customer fears and have in place mechanisms to address customer complaints before they became a delay to the project or additional costs.



<b>Office Use Only</b>
Session #: <u>F</u>
Session Date/Time: <u>9/13 10:45</u>
Moderator: _____

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: 2005 Annual Conference

CONFERENCE DATE: September 11, 2005

PAPER TITLE (128 Characters & Spaces Maximum)

Customer Focus Helps Construct 36-inch Main Through Neighborhood

PRESENTATION DESCRIPTION: (up to 30 words)

An overview of customer service efforts the Louisville Water Company tried as a 36-inch main was constructed through a neighborhood.

AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Ted Niemann

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* Ted "Nee-man"

I haven't seen an agenda as of July 11, 2005, I may stay longer.

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Project Manager

Company Louisville Water Company

Address 550 S. Third St

City Louisville State KY Zip 40202

Phone 502-569-3661 Fax 502-569-3691 E-Mail tneimann@lwcky.com

**PRESENTER BIO:** (up to 100 words)

Ted Niemann is a Project Manager for Louisville Water Company. He manages design, construction and select maintenance of transmission mains for the Company.

Mr. Niemann received a Bachelor of Science Degree in Civil Engineering in May 1982 and a Master of Science Degree in Civil Engineering in May 1984 from the University of Kentucky. Areas of study included water distribution system, hydraulic analysis, and computer modeling.

Mr. Niemann is currently a member of AWWA and serves on the AWWA Standards Committee on Concrete Pressure Pipe.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

**Title** \_\_\_\_\_ Ted Niemann \_\_\_\_\_

**Company** \_\_\_\_\_ Louisville Water Company \_\_\_\_\_

**Address** \_\_\_\_\_ 550 S. Third Street \_\_\_\_\_

**City** \_\_\_\_\_ Louisville \_\_\_\_\_ **State** \_\_\_\_\_ KY \_\_\_\_\_ **Zip** \_\_\_\_\_ 40205 \_\_\_\_\_

**Phone** \_\_\_\_\_ 502-569-3661 \_\_\_\_\_ **Fax** \_\_\_\_\_ 502-569-3691 \_\_\_\_\_ **E-Mail** \_\_\_\_\_ tniemann@lwcky.com \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

CUSTOMER SERVICE &  
FINANACE

SAFETY AND SECURITY

SMALL SYSTEMS

PLANT OPERATIONS

DISTRIBUTION

RESEARCH

ENGINEERING &  
CONSTRUCTION

PUBLIC INFORMATION

WATER RESOURCES &  
CONSERVATION

WATER QUALITY

MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Shannon Wray	Charlene Searcy
COMPANY:	Metro Water Services	Metro Water Services
ADDRESS:	1700 Third Avenue North	1700 Third Avenue North
CITY/ST/ZIP:	Nashville, TN 37208	Nashville, TN 37208
PHONE:	615-862-4696	615-862-4543
FAX:	615-862-4699	615-862-4837
EMAIL:	shannon.wray@nashville. gov	charlene.searcy@nashville.gov

TITLE OF PAPER (128 characters and spaces maximum):

Improving Customer Satisfaction with EBPP and Bill Print

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

Ongoing

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

CIS conference, Pheonix, Arizona on May 19, 2005

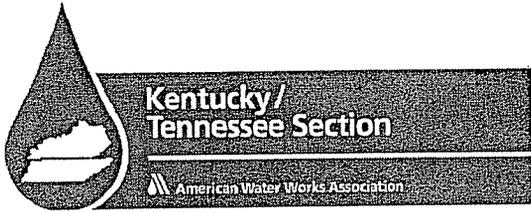
IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE  
EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005  
JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental  
material will be accepted)

Customer satisfaction is essential to Metro Water Services. We will show you how we developed a case  
that offered new technology in order to fulfill our customers needs, have more options availabe, and be a

competitor in industry trends. This workshop will provide business needs objectives, benefits and goals, give input on how to balance additional customer options with costs, and show how we will educate consumers about the additional options.



<b>Office Use Only</b>
Session #: <u>F</u>
Session Date/Time: <u>9/13 1:00 PM</u>
Moderator: _____

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: 2005 Joint Professionals Conference

CONFERENCE DATE: September 11 - 14

PAPER TITLE (128 Characters & Spaces Maximum)  
Developing a Business Case for Offering EBPP Services

PRESENTATION DESCRIPTION: (up to 30 words)  
This workshop will show how we developed a case that offered new technology in order to fulfill customer needs, have more options available, and be a competitor in industry trends.

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Ms. Shannon Wray  
*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Customer Service Assistant Manager

Company Metro Water Services

Address 1700 Third Avenue North

City Nashville State TN Zip 37208

Phone 615-862-4696 Fax 615-862-4699 E-Mail Shannon.wray@nashville.gov

PRESENTER BIO: (up to 100 words)

Shannon Wray has been with Metro Water Services since 1988. She is a Customer Service Assistant Manager at Metro Water Services and is responsible for the Billing and Collections Section. She received her bachelors degree in Management and Human resources.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) Ms. Charlene Searcy

CONFERENCE REGISTRATION STATUS: FULL X ONE-DAY

Title Information Systems Specialist

Company Metro Water Services

Address 1700 Third Avenue North

City Nashville State TN Zip 37208

Phone 615-862-4543 Fax 615-862-4837 E-Mail Charlene.searcy@nashville.gov

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Judy Z. King	
COMPANY:	Quality Management Services, LLC	
ADDRESS:	229 Highcliff Drive	
CITY/ST/ZIP:	Hendersonville, TN 37075	
PHONE:	615.826.6537	
FAX:	615.826.0182	
EMAIL:	judy@qmsresults.com	

TITLE OF PAPER (128 characters and spaces maximum):  
Benchmarking 101 and Water Utility Business Optimization

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
Complete Now

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
City of Arlington Water Utility and City Council, TX, Fall, 2004;  
AWWA Austin, TX Chapter, 2/18/05 (Upcoming)

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE  
EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005  
JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

## Benchmarking 101 and Water Utility Business Optimization

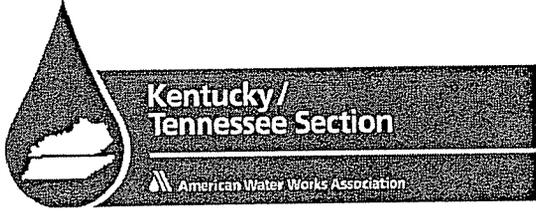
Benchmarking, the practice of making comparisons, has been used in the private sector for over 20 years. The primary objectives of this practice are to improve cost effectiveness, efficiency, customer service, and product quality. With the push for public utilities to operate competitively, benchmarking has become increasingly popular with the public sector.

This presentation will include:

- What benchmarking is...and is not
- What the benefits are for the utility and individuals
- How it is done
- Common pitfalls
- Opportunities for Q&A and discussion

The findings of a 2004 benchmarking study on Customer Service competitiveness that was conducted by Quality Management Services and Brown & Caldwell will be highlighted in this presentation. Fourteen utilities nationwide participated in this study, including Metro Nashville Water Services. Comparisons made to comparable private sector functions will also be presented.

Session participants will come away with a better understanding of the practice of benchmarking and how it can be useful in business optimization and customer satisfaction initiatives.



Office Use Only

Session #: F

Session Date/Time: 9/13 1:45/PM

Moderator: \_\_\_\_\_

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: 2005 KY-TN Joint Professionals Conference

CONFERENCE DATE: September 13, 2005, 1:45 p.m. – 2:30 p.m.

PAPER TITLE (128 Characters & Spaces Maximum)  
Benchmarking 101 and Water Utility Business Optimization

PRESENTATION DESCRIPTION: (up to 30 words)  
With the push for public utilities to operate competitively, benchmarking has become popular with the public sector. Benchmarking basics and the findings of a 2004 benchmarking study will be highlighted.

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*  
A wireless lavalier microphone if the room size requires it.

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Ms. Judy Z. King

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY X

Title Principal

Company Quality Management Services, LLC

Address 229 Highcliff Drive

City Hendersonville State TN Zip 37075

Phone 615.414.3648 Fax 615.826.0182 E-Mail judy@qmsresults.com

**PRESENTER BIO:** (up to 100 words)

Judy Z. King is founder and principal of QMS, a Nashville-based management consulting and training firm that provides solutions to organizational improvement and people development challenges. Areas of expertise include customer service, quality management, team building, operational training and evaluation systems, leadership development, and strategic planning. Local government clients in Tennessee include Metropolitan Nashville Water Services, Nashville Electric Service, and Metro Nashville Public Schools. Judy has served twice as an Examiner for the Malcolm Baldrige National Quality Award and co-authored Quality Leadership and Management in the Hospitality Industry. Judy greatly enjoys helping organizations improve performance and customer and employee satisfaction.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Bob Norton	
COMPANY:	Quality Management Services, LLC	
ADDRESS:	1616 Braebury Circle	
CITY/ST/ZIP:	Nashville, TN 37211	
PHONE:	615.834.4642	
FAX:	615.834.4643	
EMAIL:	bob@bobnorton.net	

TITLE OF PAPER (128 characters and spaces maximum):  
A Conflict Resolution Tool That Works!

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
Complete Now

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
Metro Water Services, Nashville, TN - 2004  
Texas Fire Chiefs Association (upcoming April 27, 2005)

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT BRIEFTITLE MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

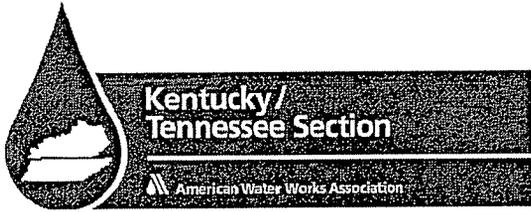
## A Conflict Resolution Tool that Works!

Leaders struggle with conflict in the workplace every day. If conflict is not addressed and resolution is not done properly, team building is affected, productivity is stifled, and efficiency is lost. There are key components of conflict resolution that must be in place for relationships to be sustained, teams to be strengthened, and the overall utility to function at its highest level.

This presentation will include:

- Key components of conflict resolution
- How the key components function together
- Common mistakes leaders make in conflict resolution
- What leaders can do immediately to improve conflict resolution
- How conflict being resolved benefits individual employees, their teams, and the overall utility
- Opportunities for Q & A and discussion

Leaders in many organizations, including Metro Nashville Water Services, have learned this tool and applied it with consistently positive results.



<b>Office Use Only</b>
Session #: <u>F</u>
Session Date/Time: <u>9/13 3:30</u>
Moderator: _____

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: 2005 KY-TN Joint Professionals Conference

CONFERENCE DATE: September 13, 2005, 1:45 p.m. – 2:30 p.m.

PAPER TITLE (128 Characters & Spaces Maximum)  
A Conflict Resolution Tool That Works

PRESENTATION DESCRIPTION: (up to 30 words)

Leaders struggle with conflict in the workplace every day. If conflict is not addressed and resolution is not done properly, team building is affected, productivity is stifled, and efficiency is lost. There are key components of conflict resolution that must be in place for relationships to be sustained, teams to be strengthened, and the overall utility to function at its highest level.

AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

A wireless lavalier microphone if the room size requires it.

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Bob Norton

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY X

Title CEO

Company Norton Development Group

Address 1616 Braebury Circle

City Nashville State TN Zip 37211

Phone 615.476.7739 Fax 615.834.4643 E-Mail bob@bobnorton.net

**PRESENTER BIO:** (up to 100 words)

Bob Norton is the CEO of Norton Development Group, a Nashville-based management consulting and training firm that provides solutions to organizational improvement and people development challenges. Areas of expertise include leadership development, conflict management and resolution, executive coaching, customer service, team building, operational training and evaluation systems, and strategic planning. Local government clients in Tennessee include Metropolitan Nashville Water Services and Nashville Electric Service. Bob is an author of two books on management and motivation in the work place, and has been a consultant to organizations around the world. His passion is helping organizations develop leadership, improve performance and resolve conflict.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER  COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY: (Note: all may be applicable categories, please advise)

- CUSTOMER SERVICE & FINANCE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTERS / CO-AUTHORS:

NAME:	John L. Thomas	John Hoekstra	Daren Thompson
COMPANY:	Lebanon Water Co.	O'Brien & Gere	O'Brien & Gere
ADDRESS:	120 S. Proctor Knott Ave	607 W. Main St.	607 W. Main St.
CITY/ST/ZIP:	Lebanon, KY 40033	Louisville, KY 40202	Louisville, KY 40202
PHONE:	(270) 692-2491	(502) 587-7884	(502) 587-7884
FAX:	(270) 692-6413	(502) 587-7895	(502) 587-7895
EMAIL:		hoekstjd@obg.com	thompsds@obg.com

TITLE OF PAPER (128 characters and spaces maximum):

From Paper to Hard Drive, Keys to Automating Data and GIS Infrastructure for Smaller Utilities

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

October 2004

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

N/A

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

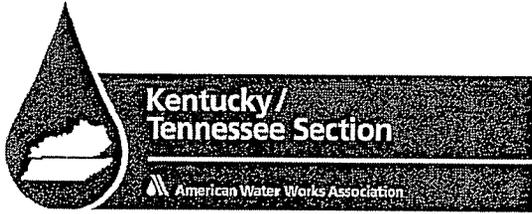
ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

Municipal utility companies are regularly faced with the challenge of maintaining accurate and automated information for their equipment infrastructure. Geographic information systems (GIS) are often used to

manage this type of information, including digital spatial data for developing facility maps and asset, maintenance, and inventory data on system equipment. For smaller utilities, the cost of implementing GIS software solutions can be significant and economically infeasible considering the limited staff and technical support available to maintain GIS data. However, automation of the data management infrastructure for the utility is necessary to effectively sustain and manage upgrades and changes to the system.

Lebanon Water Company (LWWC) and O'Brien & Gere will present a case study on the development of a comprehensive, automated data management infrastructure for the water treatment and distribution system in Lebanon, KY. The City of Lebanon has a population of nearly 6,000 people. LWWC has approximately 2,500 customers. The team effort by LWWC and O'Brien & Gere staff included field collection of equipment locations using a global positioning system (GPS), development of system maps throughout the city using GIS software, and development of an integrated utility management system (IUMS). The IUMS combines GIS technology with a user-friendly database application to effectively manage change to the system equipment and is tailored to the specific data needs of the water company. This integrated approach allows the LWWC staff to update equipment information such as maintenance inspections and asset details (*e.g.*, make, model, size, location) outside of the GIS software environment; thus relieving LWWC of the requirement to train users and purchase costly GIS software packages. System maps can still be viewed utilizing complimentary GIS viewer software. Customized reports have been developed to provide on-demand equipment information for hydrants, meters and various types of water equipment specific to LWWC's distribution system.

The migration from a manual to an automated data management process took approximately four months to complete. A water system atlas that includes maps of the system indexed by street name, major equipment and geographic location is now routinely used by LWWC maintenance and operations personnel and the city fire department to quickly locate water equipment. The automated IUMS application is used to track changes to the system such as equipment replacements and hydrant flow testing results. Additionally, the automated system can be used to review system summary information (*e.g.*, length and diameters of system piping, number of hydrants installed). Key findings associated with the field activities, approach to automate the system information and final system infrastructure associated with these efforts will be discussed.



<b>Office Use Only</b>	
Session #:	<u>F</u>
Session Date/Time:	<u>9/13 3:45 pm</u>
Moderator:	_____

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: KY/TN Water Professionals Conference

CONFERENCE DATE: September 13, 2004

PAPER TITLE (128 Characters & Spaces Maximum)

From Paper to Hard Drive: Keys to Automating Data and GIS Infrastructure for Smaller Utilities

PRESENTATION DESCRIPTION: (up to 30 words)

Challenges, unique solutions and benefits for automating the GIS and data management infrastructure of a water utility (Lebanon Water Works Co.) will be presented based on a recent project.

### AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. John Hoekstra

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* Hoke-stra

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Project Engineer

Company O'Brien & Gere

Address 607 W. Main St., Suite L2

City Louisville State KY Zip 40202

Phone (502) 587-7884 Fax (502) 587-7895 E-Mail hoekstjd@obg.com

PRESENTER BIO: (up to 100 words)

John Hoekstra is a Project Engineer with O'Brien & Gere's Louisville office. Mr. Hoekstra graduated from the University of Louisville with a B. S. degree in Chemical Engineering and is a registered E.I.T. in the state of Kentucky. He has 5 years of engineering experience and in recent years has focused on environmental consulting. Mr. Hoekstra's past experience includes the development of geographic information system (GIS) projects and customized data management applications for industrial and municipal clients.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) Mr. Daren Thompson

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title GIS Analyst

Company O'Brien & Gere

Address 607 W. Main St

City Louisville State KY Zip 40202

Phone (502) 587-7884 Fax (502) 587-7895 E-Mail thompsds@obg.com

CO-PRESENTER Mr. John Thomas

Title Superintendent

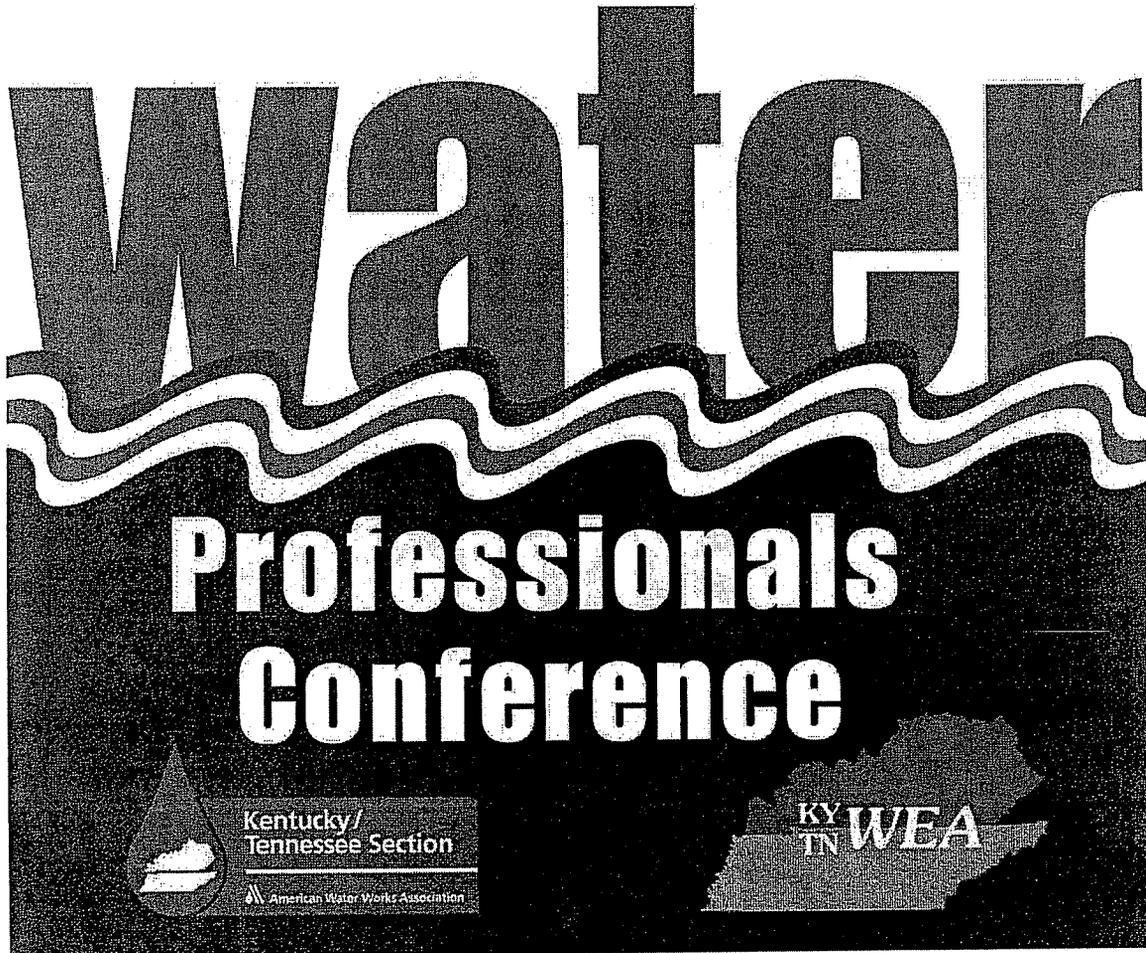
Company Lebanon Water Works Co.

Address 120 South Proctor Knott Ave.

City Lebanon State KY Zip 40033

Phone (270) 692-2491 Fax (270) 692-6413 E-Mail \_\_\_\_\_

# 2005



# Water

## Professionals Conference

 Kentucky/  
Tennessee Section

 American Water Works Association

 KY  
TN WEA

# SESSION G

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANCE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Sieglinde Kinne	
COMPANY:	Kentucky Pollution Prevention Center	
ADDRESS:	420 Lutz Hall	
CITY/ST/ZIP:	Louisville/KY/40292	
PHONE:	502-852-1566	
FAX:	502-852-0965	
EMAIL:	s.kinne@louisville.edu	

TITLE OF PAPER (128 characters and spaces maximum):

Energy Efficiency Assessments and Opportunities

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

On-going

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

KPPC presented similar material at a water professionals conference in 2003

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

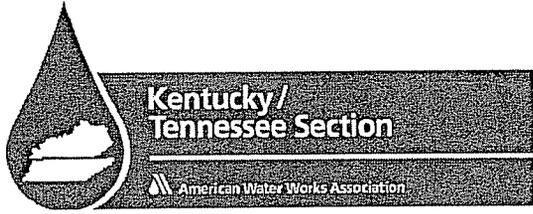
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

Abstract:

### Energy Efficiency Assessments and Opportunities

Energy conservation is one of the cheapest ways to reduce operating costs for water and waste water utilities. Electric bills are not fixed costs! An energy efficiency assessment provides valuable information for understanding where the opportunities for savings are. This presentation will explain what is involved in an energy efficiency assessment. Opportunities commonly found at pumping stations, lift stations and lagoons will be covered. For motors, in particular, the savings for purchasing an efficient motor will be compared to the cost premium. Finally, new technologies relevant to the industry will be presented in a "What Works" discussion and audience members will be asked to contribute to the discussion.



Office Use Only
Session #: <u>G</u>
Session Date/Time: <u>9/13 9:00 AM</u>
Moderator: _____

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: 2005 Joint Water Professionals Conference

CONFERENCE DATE: September 11-14<sup>th</sup>, 2005

PAPER TITLE (128 Characters & Spaces Maximum)  
Energy Efficiency Assessments and Opportunities

PRESENTATION DESCRIPTION: (up to 30 words)  
Energy efficiency ideas for water and waste water treatment facilities will be presented. Energy assessments will be described and case studies will be given.

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Sieglinde Kinne

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* Sig - Linda Kinney

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Energy Efficiency Specialist

Company Kentucky Pollution Prevention Center

Address 420 Lutz Hall, University of Louisville

City Louisville State KY Zip 40292

Phone 502-852-1566 Fax 502-852-0964 E-Mail s.kinne@louisville.edu

PRESENTER BIO: (up to 100 words)

Sieglinde Kinne is a mechanical engineer, graduating from Colorado State University. She is an experienced energy auditor having performed audits at about 40 facilities to date. She is part of a team at the Kentucky Pollution Prevention Center working on a growing energy efficiency program.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Sid Sengupta	Mark Magella
COMPANY:	Black & Veatch	Black & Veatch
ADDRESS:	11500 Northlake Dr #205	11500 Northlake Dr #205
CITY/ST/ZIP:	Cincinnati, OH 45249	Cincinnati, OH 45249
PHONE:	513-936-5121	513-936-5105
FAX:	513-984-6686	513-984-6686
EMAIL:	SenguptaS@bv.com	MagellaME@bv.com

TITLE OF PAPER (128 characters and spaces maximum):

Basic Considerations in Designing Standby Power Engine-Generators for Water and Wastewater Utilities

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

N/A

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

N/A

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

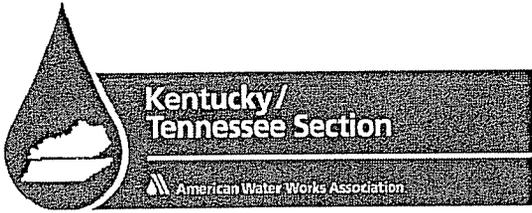
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

Abstract

## Basic Considerations in Designing Standby Power Engine-Generators for Water and Wastewater Utilities

Subsequent to the largest blackout in North American history on August 14, 2003, many water and wastewater utilities are now in the process of assessing the feasibility of providing back-up power at their facilities. The water and wastewater utility dependence on commercially supplied power as the sole source of electrical energy has raised questions about the reliability of power supplied, thereby creating an increasing interest in alternate sources of reliable standby power. Engine-generators are commonly used at water and wastewater facilities to provide standby power. For a properly sized standby power system, an engine-generator must be sized to supply the maximum starting demands and running loads of the critical process equipment. The knowledge of how the facility operates in addition to the understanding of required codes and standards is essential for a complete and properly designed standby power system. This paper provides some basic guidelines on the factors and options related to using engine-generators for providing reliable standby power for water and wastewater facilities.



<b>Office Use Only</b>
Session #: <u>G</u>
Session Date/Time: <u>9/13 9:45</u>
Moderator: _____

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: 2005 KY-TN Joint Professionals Conference

CONFERENCE DATE: 13 September, 2005

PAPER TITLE (128 Characters & Spaces Maximum)  
Basic Considerations in Designing Standby Power Engine-Generators for Water and Wastewater Utilities

PRESENTATION DESCRIPTION: (up to 30 words)

This presentation provides some basic guidelines on the factors and options related to using engine-generators for providing reliable standby power for water and wastewater facilities.

### AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Sid Sengupta

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions. Sen-goop'-tah*

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Project Engineer

Company Black & Veatch Corporation

Address 11500 Northlake Drive, Suite 205

City Cincinnati State OH Zip 45249

Phone 513-984-6630 Fax 513-984-6686 E-Mail SenguptaS@bv.com

PRESENTER BIO: (up to 100 words)

Mr. Sengupta is a project engineer with Black & Veatch and is involved in numerous water and wastewater infrastructure projects including studies, design, bid and construction phase services. Mr. Sengupta has over 9 years of experience and has a Master's degree in Civil Engineering from the University of Cincinnati. He co-authored a paper on standby power engine-generators in the October 2004 issue of Opflow, an AWWA publication.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) Mr. Mark Magella (Mah-jel'-ah)

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Electrical Project Engineer

Company Black & Veatch Corporation

Address 11500 Northlake Drive, Suite 205

City Cincinnati State OH Zip 45249

Phone 513-984-6630 Fax 513-984-6686 E-Mail MagellaME@bv.com

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY MANAGEMENT
- 

PRESENTATION INFORMATION:

PRESENTER(S):

NAME: Jeff Rose  
 COMPANY: City of Maryville  
 ADDRESS: 332 Home Ave.  
 CITY/ST/ZIP: Maryville, TN 37801  
 PHONE: (865) 981-3322  
 FAX: (865) 981-3334  
 EMAIL: jarose@ci.maryville.tn.us

David Tomljanovich  
 New Covenant  
 Knoxville, TN

TITLE OF PAPER (128 characters and spaces maximum):

Update on Water for People Projects with David Tomljanovich

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

Ongoing

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

Update given last year at KY/TN Section Meeting

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

EMAIL ADDRESS: Julie.Roney@ky.gov

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

## **2005 Kentucky-Tennessee Joint Professionals Conference**

### **Abstract**

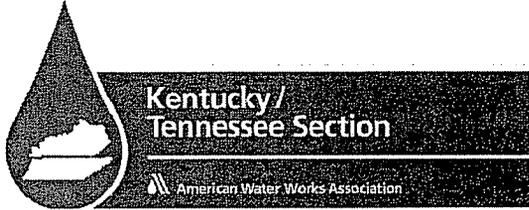
#### DESCRIPTION:

Since 1991, Water for people (WFP) has mobilized poor communities in the world to address their own basic water and sanitation needs. WFP's vision is a world where all people have access to safe drinking water and adequate sanitation; a world where no child suffers or dies from a water-related disease. WFP is a non-profit, international development organization. Founded by AWWA in 1991. WFP is AWWA's charity of choice.

WFP projects are characterized by strong collaboration with local community groups and NGO's to ensure the sustainability of each project. Health education and accountability are also components of WFP projects.

The KY/TN Section Water for People committee is actively involved in providing funds for rainwater catchment systems in the Peten District of Guatemala. The Peten District is an area in North Central Guatemala with few or no sources of clean drinking water. Wells are too costly for the average village to afford. Each rainwater catchment system serves approximately 5 people with some serving 20 or more individuals. Systems have also been installed at churches and schools to serve as community drinking water. Most recently, our Section raised over \$12,000, which will be used for rainwater catchment systems in several small villages in the Peten District of Guatemala.

There is anecdotal evidence of improved health in villages where rainwater catchment systems have been installed. Village health workers attribute the improved health to the availability of clean water.



<b>Office Use Only</b>
Session #: _____
Session Date/Time: _____
Moderator: _____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: WPC

CONFERENCE DATE: Sept. 13, 2005

PAPER TITLE (128 Characters & Spaces Maximum)  
WFP Update with David Tomljanovich

PRESENTATION DESCRIPTION: (up to 30 words)  
David will discuss the most recent rainwater catchment project as well as relate stories about the people our section is serving in Guatemala.

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*  
VCR

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Jeff Rose, (Note: I will introduce David)

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

PRESENTER BIO: (up to 100 words)

Water for People Committee Chair, see info below, I will introduce Dave Tomljanovich, the main presenter

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Director \_\_\_\_\_

Company City of Maryville Water Quality Control \_\_\_\_\_

Address 332 Home Avenue \_\_\_\_\_

City Maryville State TN Zip 37801 \_\_\_\_\_

Phone 865-981-3322 Fax 865-981-3334 E-Mail jarose@ci.maryville.tn.us \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

**2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE**

**TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM**

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

**TOPIC CATEGORY:**

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

**PRESENTATION INFORMATION:**

**PRESENTER(S):**

<b>NAME:</b>	Paul Calamita	
<b>COMPANY:</b>	AquaLaw	
<b>ADDRESS:</b>	801 E. Main Street, Suite 1002	
<b>CITY/ST/ZIP:</b>	Richmond, VA 23219	
<b>PHONE:</b>	804/716-9021	
<b>FAX:</b>	804/716-9022	
<b>EMAIL:</b>	paul@aqualaw.com	

**TITLE OF PAPER (128 characters and spaces maximum):**

\_\_\_\_\_

**DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:**

\_\_\_\_\_

**IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:**

\_\_\_\_\_

**IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE  
EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005  
JPC.**

**ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)**

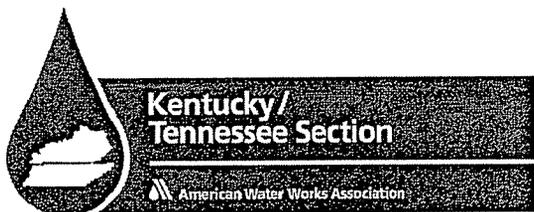
**Program Summary:**

**Wet Weather Issues and Developments.** This session will review key wet weather-related challenges and issues affecting local governments and industries across in Kentucky. The presentation will address wet weather water quality realities and the Clean Water Act approaches for refining current dry weather water quality standards to reflect wet weather realities. The session will address the evolving storm water programs as well as the increasing challenges to develop and implement appropriate controls for combined and sanitary sewer overflows. An update on several key storm water-related cases from California to a recent appeal of the MS4 permit for the District of Columbia.

**Total Maximum Daily Loads: The next Clean Water Act Battleground.** This session will identify the key issues being raised in challenges to individual TMDLs. We will also review strategies that are being pursued for managing the TMDL process and, as necessary, challenging and defending TMDLs. Some of the emerging issues we will discuss include: (1) how should TMDLs be expressed (annual, seasonal, monthly or daily), (2) can TMDLs be phased where the attainability of current designated uses or water quality standards is in doubt, (3) can TMDLs assign load reductions to categories of dischargers (such as storm water outfalls across a community) or must individual outfall loadings be specified, (4) can TMDLs impact land use decisions and (5) what impact, if any, can impaired waters designations have on new or existing discharges to those waters.

*(Mosen papers)*  
✓ **Clean and Safe Drinking Water Act Programs Collide.** There is increasing concern, if not open conflict, between drinking water providers and wastewater treatment providers over whether the Safe Drinking Water Act imposes additional requirements on wastewater treatment plant discharges. Specifically, debate is increasing over whether and to what extent wastewater permits must be conditioned to protect downstream sources of public water supply. This debate is surfacing during (1) permitting for wastewater treatment plants, (2) development of TMDLs, (3) establishment of source water protection areas and any related POTW controls, and (4) the development of storm water and sewer overflow management plans. This presentation will review some of the pending conflicts between water and wastewater utilities as well as approaches that have been taken where those conflicts have been resolved.

✓ **Legislative Update.** This session will provide an update on both State and Federal legislation of interest to water and wastewater professionals. We will review bills of interest from the 2005 session of the Kentucky Legislature as well as bills introduced in the 1<sup>st</sup> Session of the 109<sup>th</sup> Congress, to include key aspects of the FY 2006 federal budget as it stands as of the conference date.



**Office Use Only**

Session #: G

Session Date/Time:

9/13 1:00 PM

Moderator: \_\_\_\_\_

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: Water Professionals Conference 2005

CONFERENCE DATE: Tuesday September 13

PAPER TITLE (128 Characters & Spaces Maximum) Clean and Safe Drinking Water Acts Collide

PRESENTATION DESCRIPTION: (up to 30 words) This presentation will review the increasing conflicts between drinking and wastewater utilities as they strive to comply with the Clean and Safe Drinking Water Acts.

**AUDIO VISUAL NEEDS:**

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Paul Calamita

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Paul Calamita

Company AquaLaw, PLC

Address 801 E. Main Street

City Richmond State VA Zip 23219

Phone 804/716-9021 Fax 804/716-9022 E-Mail paul@aqualaw.com

**PRESENTER BIO:** (up to 100 words)

Paul Calamita is a founding partner of AquaLaw. He assists communities across the country with water and wastewater matters.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

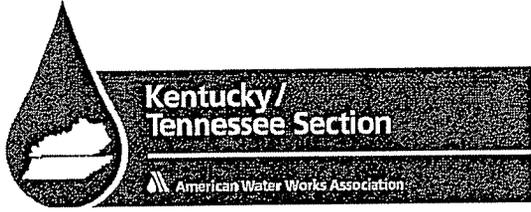
Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_



<b>Office Use Only</b>
Session #: <u>G</u>
Session Date/Time: <u>9/13/04</u>
Moderator: _____

**Kentucky/Tennessee Section AWWA**  
**Speaker Introduction Form**

CONFERENCE NAME: Water Professionals Conference 2005

CONFERENCE DATE: Tuesday September 13

PAPER TITLE (128 Characters & Spaces Maximum) Congressional and State Legislative Update

PRESENTATION DESCRIPTION: (up to 30 words) This presentation will review several important changes in Congress for 2005 as well as pending legislation of interest before Congress and the State Legislatures from the 2005 State sessions.

**AUDIO VISUAL NEEDS:**  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Paul Calamita

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Paul Calamita

Company AquaLaw, PLC

Address 801 E. Main Street

City Richmond State VA Zip 23219

Phone 804/716-9021 Fax 804/716-9022 E-Mail paul@aqualaw.com

PRESENTER BIO: (up to 100 words)

Paul Calamita is a founding partner of AquaLaw. He assists communities across the country with water and wastewater matters.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANCE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Stuart	Bowns
COMPANY:	Hydromax USA	
ADDRESS:	71 Cavalier Blvd	Suite 122
CITY/ST/ZIP:	Florence, KY 41042	
PHONE:	859-512-7878	
FAX:	859-525-7200	
EMAIL:	stu.bowns@hydromaxusa.com	

TITLE OF PAPER (128 characters and spaces maximum):

AWWA Water Loss Control Committee Continuing Outreach:  
WRITING A NEW AWWA PUBLICATION ON WATER LOSS CONTROL - A  
PROGRESS REPORT

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

N/A

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

• Presenter will be a member of AWWA's Water Loss Control Committee who will be identified after the paper is selected. We have over 18 members and 22 interested stakeholders (non-voting participants) from around the world who are involved in this outreach program. All are volunteers and schedules have to be confirmed.

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

**ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)**

The International Water Association (IWA), in cooperation with the American Water Works Association (AWWA), developed a water audit methodology for a water supplier that is structured to serve as a standardized best management practice. In 2003, the Water Loss Control Committee's report entitled: "Applying Worldwide Best Management Practices in Water Loss Control" adopted this method and advocates its use by the North American water industry. While the AWWA committee report gives a good overview of the water audit methods, it does not serve as a step-by-step guide for operators in applying it.

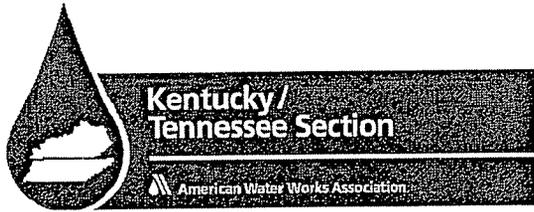
AWWA initially published Water Audits and Leak Detection as publication number M36 under its Manual of Water Supply Practices series in 1990. This original manual was based largely upon a publication compiled by the California Department of Water Resources, and was coordinated through AWWA's California-Nevada Section. The manual was updated and revised in 1999, although these revisions were largely refinements in appearance, labeling and sample data. The primary content of the manual remained unchanged. AWWA's Water Loss Control Committee is responsible for the rewrite of the M-36 Manual Water Audits and Leak Detection; to give owners and operators detailed instruction in compiling the water audit methods and launching a loss control program.

The M36 has been recognized for its user-friendly approach, but it lacks the rational structure of new water audit methods. It has sold only 6,000 copies in its 13-year circulation lifetime; thereby reaching only a fraction of North America's 54,000+ water utilities and drinking water stakeholders.

This paper gives an overview of AWWA's current effort to rewrite the M36 publication. The goals are to provide:

- user-friendly instructions to compile the new water audit method
- launch a loss control program
- promote standardization for better water resource management

The new publication is intended to emphasize the need for the water industry to standardize on a single "best management practice" method. The primary purpose of the new publication is to explain the new methodology outlined in the Committee Report. In this way, an initial baseline of realistic water accounting and loss data can be established for community drinking water utilities. Policy-makers and regulators will better understand how water resources are being managed by the water purveyors. This knowledge will help shape improved policy, regulations and funding decisions to promote more efficient management and loss control within the water systems.



<b>Office Use Only</b>
Session #: <u>G</u>
Session Date/Time: <u>9/13 3:00</u>
Moderator: _____

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: 2005 Water Professionals Conference

CONFERENCE DATE: September 11-14, 2005

PAPER TITLE (128 Characters & Spaces Maximum) A New AWWA Publication on Water Loss Control – A Progress Report

PRESENTATION DESCRIPTION: (up to 30 words) The AWWA Water Loss Control Committee is pursuing an active effort to educate professionals on new concepts for water loss control.

### AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Stuart Bowns

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* Downs

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title AWWA WLC Committee Member

Company Hydromax USA

Address 71 Cavalier Boulevard, Suite 122

City Florence State KY Zip 41042

Phone 859-512-7878 Fax 859-525-7200 E-Mail Stu.bowns@hydromaxusa.com

**PRESENTER BIO:** (up to 100 words) Chairman of Communications subcommittee within the Water Loss Control committee. Has performed numerous water audits for systems serving small communities to large cities in the US and foreign countries since the late 1970s.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

Safety - Yes (55)

DRINKING WATER BRANCH  
2004 NOV 29 AM 9:32  
DIVISION OF WATER

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER  POSTER

AREA OF CONSIDERATION:  WATER  COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANCE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH
- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S): *Stephen Street substitute speaker*

NAME:	<i>Joseph A. Estes, Sr</i>	
COMPANY:	<i>Metro Water Services</i>	<i>Knoxville Utility Board</i>
ADDRESS:	<i>1600 2nd Ave. North</i>	
CITY/ST/ZIP:	<i>Nashville, TN 37208</i>	
PHONE:	<i>615-862-4862</i>	
FAX:	<i>615-862-4532</i>	
EMAIL:	<i>joe.estes@nashville.gov</i>	

TITLE OF PAPER (128 characters and spaces maximum):  
Confined Space Entry

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
Presently

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
KY/TN AWWA Safety/Security Presentations (Kentucky and Tennessee)

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

*Also chemical safety- alternatives  
\*Julie: OSHA Reportable, Personal injury*



# MWS CONFINED SPACE ENTRY PROGRAM

TOSHA 29 CFR 1910.146  
(Revised as of May 10, 2004)

## I. DEFINITIONS

- A. A confined space which requires an entry permit is an enclosed space which meets one or more of the following criteria:
1. Is large enough and laid out in such a way that a worker could enter and perform work;
  2. Has limited means of entry and exit such as tanks, vessels, silos, tank cars, storage bins, hoppers, vaults, pits, or diked areas, but not limited to the above;
  3. Is not designed for continuous occupancy by the worker; and
  4. Has one or more of the following characteristics:
    - a. Contains or may contain a hazardous atmosphere
    - b. Contains the potential for engulfment by loose particles
    - c. Unfavorable natural ventilation
    - d. Contains any other recognized serious safety or health hazard
- B. "Entry" into a confined space is defined as the act of placing any body part into the area meeting the above criteria...this especially includes your face or head.
- C. "Entry Permit" refers to the "Confined Space Entry Permit" contained at the end of this procedure.

## II. PROGRAM ELEMENTS

### A. Training Requirements

1. General – All employees who may encounter confined spaces in the course of their work must be made aware of the appropriate procedures and controls for entry and that unauthorized entry into such spaces is forbidden. They must be made to realize that unauthorized entry could be fatal, and that their senses may be unable to detect and evaluate the severity of atmospheric hazards.

2. Authorized Personnel – All personnel entering a confined space must be trained on the following prior to entry:
  - a. Hazard recognition...the nature of the hazard and the need to perform appropriate testing to determine if it is safe to enter. Signs and symptoms of toxic effects from chemical exposure must be known.
  - b. Use of Personal Protective Equipment required for entry and rescue
  - c. Self-rescue techniques needed to get out of the specific confined space as rapidly as possible without help by the safety watch
  - d. Any special work practices or procedures needed to perform work in the confined space safely
  - e. Lock-out/Tag-out procedures for equipment
  - f. Use of atmospheric monitoring equipment
  
3. Safety Watch – All employees who are assigned this responsibility must be trained in the following:
  - a. Proper use of designed communications equipment
  - b. Hazards of any chemicals in the confined space and the signs and symptoms of toxicity resulting from exposure to these chemicals
  - c. Use of atmospheric monitoring equipment
  - d. Rescue skills
  - e. Above requirements for authorized personnel if rotation of duties is performed
  - f. Lock-out/Tag-out procedures for equipment
  - g. Training in the duties of a safety watch as listed below:
    - (1) Maintain continuous (not necessarily constant) communications with workers in the confined space by any means
    - (2) Never enter the confined space even if the workers in the space are in trouble
    - (3) Monitor the atmosphere in and around the confined space for any change that might affect the workers in the area
    - (4) Order workers in the confined space to get out at the first indication of the following:
      - ◆ a condition whose hazard potential exceeds the limits authorized by the entry permit
      - ◆ an unexpected hazard
      - ◆ a toxic reaction which might be recognized by observing unusual actions in the workers, or
      - ◆ a situation outside the confined space which could pose a hazard to the workers inside the space
    - (5) Remain at your post. Do not leave unless relieved by another qualified safety watch, or expect to save your own life. If you must leave for other reasons and there is not

qualified relief personnel, order the workers to leave the confined space.

- (6) Warn any unauthorized personnel not to enter, or instruct them to leave if they have entered the area. Alert the workers in the space and supervisory personnel of any unauthorized entry.

4. Supervisory Personnel - Any supervisory personnel required to initiate and complete a confined space entry permit must be trained in the following:

- a. All requirements covered for previous personnel in this section
- b. All duties required by the current confined space entry program

## **B. Personal Protective Equipment**

Some confined space entries may require the use of PPE by workers entering the area and/or by rescue teams. Only qualified personnel can determine what equipment is necessary. If PPE is required, all personnel entering the space must be so equipped.

The following is a list of PPE which should be considered:

- ◆ head protection
- ◆ eye and face protection
- ◆ hand protection appropriate for the hazard
- ◆ foot protection
- ◆ protective clothing appropriate for the hazard
- ◆ respiratory protection selected in accordance with department standards
- ◆ hearing protection...consider how communications might be affected

## **C. Confined Space Entry Kit**

The following equipment must be immediately available at all confined space entry sites requiring a safety watch:

- ◆ Orange/Lime Green reflective vest(s) – as needed
- ◆ radio
- ◆ LEL/oxygen meter
- ◆ SCBA
- ◆ approved flashlight
- ◆ 5 min. escape SCBA for each worker (dependent on entry circumstances)
- ◆ 50 ft. chemical resistant rope
- ◆ signs or barricade tape to warn unauthorized personnel of entry in progress, if needed
- ◆ approved entry permit
- ◆ proper retrieval equipment, i.e. harness, hoist, etc.

- ◆ vent fans

#### D. Pre-Entry Requirements

1. Equipment Preparation – Prior to isolation of the equipment requiring an entry, every effort must be made to clean and purge the area/vessel of any hazardous contents. This should be done until atmospheric testing indicates levels are below any concentration that could cause a physical or health hazard.
2. Equipment Isolation – This is to be accomplished by utilization of appropriate plant lock-out/tag-out and line-breaking procedures when applicable.
3. Testing – Before entry, it is necessary to perform atmospheric tests in the confined space for oxygen levels, flammability, and/or any contaminants that have a potential to be present in the space. The tests must be performed by qualified personnel using equipment that has been checked for proper function prior to use.

Testing must be performed throughout the entire portion of the space that workers will occupy during the entry. This testing shall be done without the use of ventilation systems. The atmosphere must be tested at various levels since some gases and vapors are lighter or heavier than air, which could result in a layering effect. The air outside the confined space must also be tested to ensure the surrounding air is not contaminated.

The following conditions must be met before the atmosphere is considered safe:

- a. an "LEL" (lower explosion level) reading of 0%
- b. an oxygen level between 19.5% and 23.5%
- c. an airborne combustible dust at a concentration that obscures vision at a distance of greater than five feet
- d. an atmospheric concentration of a substance less than the permissible exposure limit

Entry into the confined space is prohibited until these conditions are all met or until special protective measures are provided.

Testing must be performed just prior to commencement of the entry and before re-entry if workers have left the site for an extended period of time (15-20 minutes).

#### E. Entry Permit

Each confined space entry requires the use of the MWS "Confined Space Entry Permit." Only qualified supervisory personnel are allowed to initiate and approve a confined space entry permit.

The permit shall authorize entry...

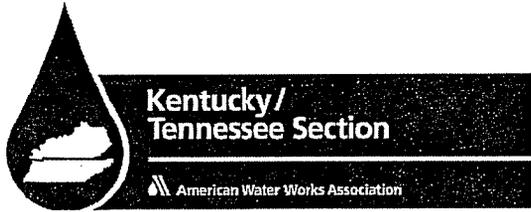
- ◆ only by qualified personnel
- ◆ into a specific confined space only
- ◆ for a specific purpose
- ◆ by a specific work crew or shift for a period of time not to exceed 8 hours

The permit must be filled out completely and signed by all personnel involved in the entry. It shall be posted in clear view at the job site at all times during the entry process.

DRINKING WATER BRANCH

2005 JUN 16 AM 9:45

DIVISION OF WATER



Office Use Only

Session #: G

Session Date/Time:  
9/13 3:30pm

Moderator: \_\_\_\_\_

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: 2005 Joint Professionals Committee Presentation

CONFERENCE DATE: Sept 13, 2005

PAPER TITLE (128 Characters & Spaces Maximum)  
Confined Space Entry

PRESENTATION DESCRIPTION: (up to 30 words)  
This presentation will outline the OSHA confined space regulations found in 29 CFR 1910.146 and the enclosed space regulations found in 29 CFR 1910.269(e).

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Stephen Street

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions. Just like the street you drive on.*

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Safety Specialist

Company Knoxville Utility Board

Address P.O. Box 59017

City Knoxville State TN Zip 37950-9017

Phone 865-558-2726 Fax 865-558-2168 E-Mail sstreet@kub.org

PRESENTER BIO: (up to 100 words)

Mr. Street has over 20 years of experience in emergency services at the city, county and state level. He taught safety courses at The University of Tennessee for 10 years. He currently works as a safety specialist for the Knoxville Utility Board.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005

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# 2005

**water**

**Professionals  
Conference**

Kentucky/  
Tennessee Section

American Water Works Association

KY  
TN WEA

# SESSION H

Copy (26)

**2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM**

 PAPER POSTERAREA OF CONSIDERATION:  WATER COMMON ISSUES  
(Both water and wastewater)**TOPIC CATEGORY:**

- CUSTOMER SERVICE & FINANCE  
 SAFETY AND SECURITY  
 SMALL SYSTEMS  
 PLANT OPERATIONS  
 DISTRIBUTION  
 RESEARCH

- ENGINEERING & CONSTRUCTION  
 PUBLIC INFORMATION  
 WATER RESOURCES & CONSERVATION  
 WATER QUALITY  
 MANAGEMENT

**PRESENTATION INFORMATION:****PRESENTER(S):**

NAME:	Don Adams	
COMPANY:	JIL Industries	
ADDRESS:	325 Emmett Avenue	
CITY/ST/ZIP:	Bowling Green, KY 42101	
PHONE:	270-782-7827	
FAX:	270-782-3414	
EMAIL:	donadams@bowlinggreen.net	

**TITLE OF PAPER (128 characters and spaces maximum):**  
**PHOSPHATE TECHNOLOGIES DO THEY REALLY WORK? HOW? WHY?**

**DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:**  
 \_\_\_\_\_

**IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:**  
 \_\_\_\_\_

**IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:**  
**ABSTRACT\_BRIEF TITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.**

**ABSTRACT (attached): (maximum of 3,000 characters and spaces—NO supplemental material will be accepted)**

# ABSTRACT

For

## KY/TN AWWA CONFERENCE 2005

### PHOSPHATE TECHNOLOGIES (DO THEY REALLY WORK?)

Phosphates have been used since the 1930s for the treatment of drinking water, there appear to be several areas of concern in the market place, even to whether they do anything or not. The history should be briefly reviewed. The chemistry should be studied more closely. The characteristics of water and of phosphates should be clarified. We should understand the difference between chemicals and chemical blends. The physical chemical methods involved in CLEANOUT, SEQUESTRATION, and CORROSION should be better understood. The methods of marketing should be investigated. And the methods of manufacturing of blends should be considered. The costs of treatment (not price of product) needs to be looked at very closely.

The water that enters your home needs to be of the highest quality and certainly be affordable. Let's look closely at all these issues and how to accomplish them. IT MAY BE WORTH IT!

Don Adams  
JIL Industries, a distributor of SeaQuest  
323 Emmett Avenue  
Bowling Green, KY 42101

16 February 2005

Session H  
9/13 9:00

**Roney, Julie (EPPC DEP DOW)**

---

**From:** Don Adams [donadams@bowlinggreen.net]  
**Sent:** Thursday, June 30, 2005 6:32 PM  
**To:** Julie.Roney@ky.gov  
**Subject:** Re: RE: Speaker Information Form for September Conference

Mr. Adams holds degrees in Chemistry and Mathematics from a Kentucky State University and has done graduate studies in Chemistry, Mathematics, and business. He has 45 years tenure in the chemical industry in the areas of nuclear chemistry, engineering studies, basic research, research management, nuclear sales and sales management international, plastics sales management, coal project engineering, and for the last 20 years in industrial chemicals, with emphasis on phosphates, for the municipal water and waste water industry.

Your patience with me is so appreciated, Julie.

Don

**2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE**

**TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM**

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

**TOPIC CATEGORY:**

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

**PRESENTATION INFORMATION:**

**PRESENTER(S):**

<b>NAME:</b>	<b>Bob Borneman</b>	<b>David Bible</b>
<b>COMPANY:</b>	<b>ARCADIS</b>	<b>ARCADIS</b>
<b>ADDRESS:</b>	<b>1210 Premeter Dr.</b>	<b>1210 Premeter Dr.</b>
<b>CITY/ST/ZIP:</b>	<b>Chattanooga, TN 37421</b>	<b>Chattanooga, TH 37421</b>
<b>PHONE:</b>	<b>423-756-7193</b>	<b>423-756-7193</b>
<b>FAX:</b>	<b>423-756-7193</b>	<b>423-456-7197</b>
<b>EMAIL:</b>	<b>bborneman@ARCADIS-US.com</b>	<b>dbible@ARCADIS-US.com</b>

**TITLE OF PAPER (128 characters and spaces maximum):**

**Moving to New Water Treatment Technology with a Touch of the Past**

**DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:**

**Design December 2004; construction Fall 2005**

**IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:**

**Several small potable water treatment projects have been constructed in east Tennessee in the past five years and have used both conventional and new equipment.**

**IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:**

**ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.**

**ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)**

## Moving to New Water Treatment Technology with a Touch of the Past

Robert C. Borneman, PE, DEE, David Bible, PE and Tim Carwile

ARCADIS G&M, Inc., Chattanooga, Tennessee

Lakeview Utility District, Rogersville, Tennessee

As the drinking water industry moves toward even more stringent standards, the use of modern treatment systems poses new challenges for system designers. Sand filters have been used for removing impurities from water for hundreds of years and are still the most common filtration method today. While we continue to invent new equipment to improve the filtration process, the basic mechanics for purification remain unchanged. However, modern membrane filters may offer many advantages over traditional methods. The use of membrane filtration methods is advancing yearly and may be paving the way for the replacement of sand filters in the drinking water business.

This paper addresses the investigation into providing basic treatment for a series of groundwater wells in a northeastern Tennessee community that is experiencing surface influence of its wells during rain events. A cost comparison of conventional pressure type sand filters versus micro-filtration membrane package filter units was the primary force in equipment selection. Other factors that influence the water filtration equipment selection are also addressed. The most significant equipment selection issue was the owner's desire to restore an aging 1900s printer union training building listed on the National Historic Register. The owner selected packaged/expandable membrane filtration units that allow utilization of the existing historic structures as well as projected future cost savings.

The selection process used for industry filtration technologies for this project is typical of small and large communities facing system upgrades and complex siting issues. The advances in membrane technology and the continuing reduction of membrane over reducing costs have direct implications for the future direction of the entire water industry.

The owner selected ARCADIS to design restoration of the deteriorating historic building and to design the water treatment improvements. Key components include installation of two 250-gallon-per-minute micro-filtration membrane units with capacity to expand to 400 gallons per minute each with only capsule additions, new raw water storage tanks, new clearwell, and distribution system expansion.

## Moving to New Water Treatment Technology with a Touch of the Past

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## Bio

Mr. Robert (Bob) Borneman, PE, DEE

Mr. Borneman graduated from the University of S. Alabama in 1975 followed by graduate work at Auburn University in Civil and environmental engineering. Following 2 ½ years of service for the USArmy COE he joined the firm of BCM engineers where he advanced to become the manager of the firms Mobile design center. During his 25 year carrier he has been the project manager and lead designer of over 40 water and wastewater facilities in the southern US, Mexico and China.

Mr. Borneman's project work has allowed him to be part of several innovative and leading edge initiatives including;

- EPA Region IV best large water plant design in 1997.
- The fist municipal SBR treatment facility to meet the Florida 5/5/3/1 BNR treatment limits
- The first closed cycle water treatment facility in EPA Region IV
- First membrane water treatment facility in Alabama
- First permitted receiving wetland facility in NW Florida
- First no discharge industrial treatment facility in Mexico to receive a Presidential (Mexico) award for outstanding environmental protection.
- Five USEPA innovative project grant awards for using new and energy efficient project designs.

Mr. Borneman joined ARCADIS in 2002 in its' Chattanooga office to serve as the Mid-South area Business Practice Manager for Water Resources Operations. The Mid-South design center in Chattanooga services operations in Tennessee, North Georgia, Alabama, Mississippi and portions of Kentucky.

Today Mr. Borneman is an associate vice president for ARCAIS and continues to serve as area wide Water Resources Manager as well as senior process design engineer.

**From:** Fortner, Ed (EPPC DEP DOW)  
**Sent:** Monday, January 31, 2005 9:47 AM  
**To:** Roney, Julie (EPPC DEP DOW)  
**Subject:** 2005AbstractSubmittalForm--Online Version.doc  
**2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE**

**TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM**

PAPER

POSTER

**AREA OF CONSIDERATION:**  WATER

COMMON ISSUES  
(Both water and wastewater)

**TOPIC CATEGORY:**

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

**PRESENTATION INFORMATION:**

**PRESENTER(S):**

*James Hamon*

<b>NAME:</b>	<del>Ed Fortner, Jr.</del>	
<b>COMPANY:</b>	Ky DOW/DWB	
<b>ADDRESS:</b>	200 Christy Creek Rd Ste 2	
<b>CITY/ST/ZIP:</b>	Morehead, Ky 40351	
<b>PHONE:</b>	606-784-6634	
<b>FAX:</b>	606-784-4544	
<b>EMAIL:</b>	Ed.Fortner@ky.gov	

**TITLE OF PAPER (128 characters and spaces maximum):**

Performance Based Training for Actiflo Water Plants

**DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:**

Winter 2005

**IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:**

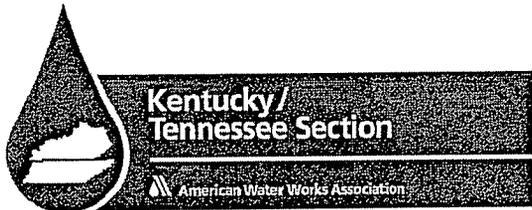
\_\_\_\_\_

**IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:**

**ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.**

**ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)**

This presentation will cover Performance Based Training for Actiflo plants in Kentucky. PBT is given under the umbrella of Area Wide Optimization facilitated through region four EPA. Multiple Water Utilities are trained over the course of approximately one year. The focus of the training is turbidity removal as it pertains to removal of Cryptosporidium and Giardia. There is both a classroom focus as well as hands-on training. The presentation will detail past PBT training and the presently ongoing Actiflo PBT. The status of the training is ongoing, with the majority of the training concluded by the time of this presentation. Accomplishments of past and current training have been improved operational skills, improved scientific investigation skills, and improved awareness of the importance of turbidity removal in relation to Crypto and Giardia removal. Conclusions drawn from this training have been the need for improved skills in removal of turbidity and improved professional development of operators and management of water utilities. The findings of this training are definition of limitations to reach optimized turbidity removal and implementation of skills geared to overcome these limitations.



Office Use Only

Session #:   H  

Session Date/Time:  
  9/13 10:45  

Moderator: \_\_\_\_\_

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME:   2005 Water Professionals Conference  

CONFERENCE DATE:   September 13, 2005  

PAPER TITLE (128 Characters & Spaces Maximum)

PRESENTATION DESCRIPTION: (up to 30 words)  
  Performance Based Training (PBT) for ACTIFLO water treatment plants  

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.)   Mr. James E. Hamon PE  

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS:  FULL  ONE-DAY X

Title   Performance Based Training for Actiflo Water Plant  

Company   Kentucky Division of Water  

Address   14 Reilly Road  

City   Frankfort   State   KY   Zip   40601  

Phone   (502)564-3410   Fax   (502) 564-   E-Mail   James.Hamon@ky.gov    
  X637     9899

PRESENTER BIO: (up to 100 words)

Registered engineer and land surveyor. Worked in the Drinking Water Branch for 17 years as plans review engineer and technical assistance provider. Certified as a facilitator for water treatment plant Comprehensive Performance Evaluation. Represents KY Drinking Water program at quarterly Area Wide Optimization meetings. Spend spare time: In a band for last 12 years playing saxophone and guitar. Member of Bloodstock Research handicapper's hall of fame. Avid pet owner.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Kim Childress	
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FAX:	(931) 455-6488	
EMAIL:	labmanager@druc.org	

TITLE OF PAPER (128 characters and spaces maximum):

LT2 Compliance: 24 Months of Monitoring for Cryptosporidium & Giardia at 5 WTP Intakes Along the Duck River Watershed

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
August 2005

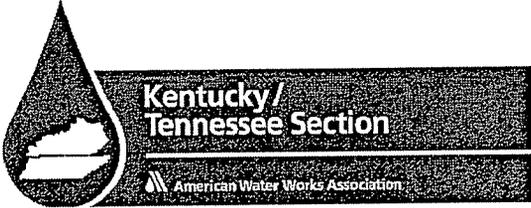
IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
2004 KY/TN Water Professionals Conference

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE  
EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005  
JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

The LT2 Rule is an upcoming Environmental Protection Agency regulation requiring utilities using source water under the influence of surface water to test for Cryptosporidium, E. coli and turbidity. These test results will be used to classify water systems into bin classifications, potentially triggering additional treatment requirements.

The proposed LT2 Rule provided an opportunity for utilities to begin testing immediately and have the data grandfathered. A cooperative group of utilities including the Duck River Utility Commission, Bedford County Utility District, Columbia Power and Water System, Lewisburg Water Department, and the Shelbyville Power and Water Board have joined to conduct a waterborne pathogen study on the Duck River Basin. The comprehensive twenty-four month study includes LT2 compliance testing on all water intakes as well as pathogen quantification and identification work throughout the river basin from Manchester, TN to Centerville, TN, including Normandy Reservoir. Testing began in September 2003 and will conclude in August 2005 for all LT2 sites. Results will determine the bin classification for each utility, therefore allowing these utilities early planning of additional treatment and costs associated with the promulgation of the LT2 rule. Further testing will involve ribotyping techniques to identify the sources of the contamination. This information is intended to assist the source water protection programs of the Duck River Agency in targeting mitigation projects and thereby preventing pollution of the water resources of the Duck River. The 24 months of sample analysis will also be applied to determine bin classification for all participating utilities and evaluation of treatment modifications necessary for compliance under the new LT2 rule following promulgation.



<b>Office Use Only</b>	
Session #:	<u>N</u>
Session Date/Time:	<u>9/13 1:30</u>
Moderator:	_____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: Kentucky – Tennessee Joint Professionals Conference

CONFERENCE DATE: September 11 – 14, 2005

PAPER TITLE (128 Characters & Spaces Maximum)  
LT2 Compliance: 24 Months of Monitoring for Cryptosporidium & Giardia @ 5 Water Treatment Plant Intakes Along the Duck River Watershed

PRESENTATION DESCRIPTION: (up to 30 words)  
An overview of the Long Term 2 Enhanced Surface Water Treatment Rule including results and possible improvements at WTPs along the Duck River Watershed.

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mrs. Kimberly Childress

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL x ONE-DAY

Title Microbiologist

Company Duck River Utility Commission

Address 270 Water Lane PO Box 1237

City Tullahoma State TN Zip 37388

Phone 931-455-6458 Fax 931-455-6488 E-Mail labmanager@druc.org

**PRESENTER BIO:** (up to 100 words)

A 1995 graduate of Middle TN State University with a degree in Microbiology and Chemistry minor. Obtained a Grade IV Operator's License in 1997. Has been employed with Duck River Utility Commission for the past seven years.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Joe Griffey, E.I.	Michael Bernard, P.E.
COMPANY:	Smith Seckman Reid, Inc.	Smith Seckman Reid, Inc.
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CITY/ST/ZIP:	Nashville, TN. 37204	Nashville, TN. 37204
PHONE:	615-383-1113	615-383-1113
FAX:	615-386-8469	615-386-8469
EMAIL:	jgriffey@ssr-inc.com	mbernard@ssr-inc.com

TITLE OF PAPER (128 characters and spaces maximum):

Initial Distribution System Evaluation: Using a System Specific Study to Meet IDSE Requirements

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

N/A

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

N/A

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

**ABSTRACT**  
**Initial Distribution System Evaluation:  
Using a System Specific Study to Meet IDSE Requirements**

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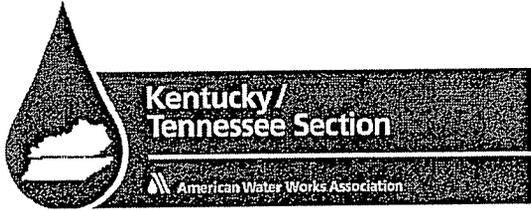
Joe Griffey, EI – Smith Seckman Reid, Inc.  
Michael Bernard, PE- Smith Seckman Reid, Inc

With the impending Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR), all water systems treating surface or ground water with a residual disinfectant other than ultraviolet irradiation will be required to complete an Initial Distribution System Evaluation (IDSE). The results from an IDSE will be used to select Stage 2 DBPR compliance sites for TTHMs and HAA5.

Under Stage 2 DBPR regulations, water systems can complete an IDSE using one of two methods. The default method, called a Standard Monitoring Program (SMP), incorporates a preliminary evaluation of potentially high DPB sites and one year of sampling at these sites to select Stage 2B monitoring sites. Water systems may also elect to complete a System Specific Study (SSS) in lieu of a SMP. A SSS utilizes any combination of a distribution system's historical water quality data, calibrated computer model, GIS database, and any other source of pre-existing data to predict potentially high DBP sites and select final Stage 2B monitoring sites. Water systems are permitted to select either method provided they meet the requirements outlined by the IDSE regulation.

Because of costly laboratory DBP tests and a prolonged IDSE schedule associated with a SMP, many water systems may decide to complete a SSS for IDSE compliance. For those systems with large amounts of historical water quality data, GIS data, or an existing water model, completing a SSS could likely be the most efficient and cost effective method. For those systems without an existing water model, selecting the SSS method may still be a feasible alternative when the cost of developing a calibrated computer model would provide future benefits to the water system not realized by a SMP.

The paper will give a brief overview of IDSE requirements and schedules, and the implementation of the Stage 2 DBPR as it relates to the IDSE. The paper will also outline the similarities and differences in the SMP and SSS methods, as well as provide general guidance in the selection process. Anticipating broad interest in SSS's, the paper will detail the requirements governing the use of SSS for IDSE compliance and specifically address acceptable historical data, developing and calibrating a computer-based water model with or without GIS data, and using SSS results to select Stage 2B monitoring sites.



Office Use Only

Session #: H

Session Date/Time: 9/13 1:45 pm

Moderator: \_\_\_\_\_

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: 2005 KY/TN Water Professionals Conference

CONFERENCE DATE: September 11-14, 2005

PAPER TITLE (128 Characters & Spaces Maximum)

Initial Distribution System Evaluation: Using a System Specific Study to Meet IDSE Requirements

PRESENTATION DESCRIPTION: (up to 30 words)

The presentation details the requirements for using and SSS for IDSE compliance and addresses acceptable historical data, developing and calibrating a computer-based water model and using SSS results.

AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Joe Griffey

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator*

*During introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

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PRESENTER BIO: (up to 100 words)

Joe Griffey is an E.I. with Smith Seckman Reid, Inc. in Nashville, TN. He has attended a national AWWA seminar in Seattle, WA. detailing the IDSE components and regulations. Mr. Griffey is a certified master modeler applying WaterCAD and WaterGEMS for advanced water distribution systems modeling.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) Mr. Mike Bernard

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

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City Nashville State TN Zip 37204

Phone 615-383-1113 Fax 386-8469 E-Mail mbernard@ssr-inc.com

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

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FAX:	412-787-6790	
EMAIL:	nmegonnell@calgoncarbon-us.com	

TITLE OF PAPER (128 characters and spaces maximum):

Case Study: Frostburg, MD –

A study of Granular Activated Carbon vs. Anthracite for removal of DBP's, THM's and HAA5's.

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

\_\_\_\_\_

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

\_\_\_\_\_

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

Neal Megonnell – Corporate Technical Sales Specialist  
Calgon Carbon Corporation

Abstract:

Granular Activated Carbon and Anthracite filter media are commonly used to meet today's water quality standards. Recently, Granular Activated Carbon was associated with replacing Anthracite for problems such as Taste and Odor, Organics and Color removal. However, new regulations will require many plants to review their filter media make up and consider how to meet the demands for removal of DBP's, THM's and HAA5.

A study was conducted in the summer of 2003 to compare Granular Activated Carbon (2 sources) and Anthracite filter media for removal of DBP, THM, TOC and HAA5 as well as finished water quality (taste and odor and color).

The Frostburg, MD study will demonstrate that domestically sourced Granular Activated Carbon outperforms other sources of carbon as well as Anthracite in removal of DBP's, THM, HAA5 and produces a superior quality finished product.

Biography

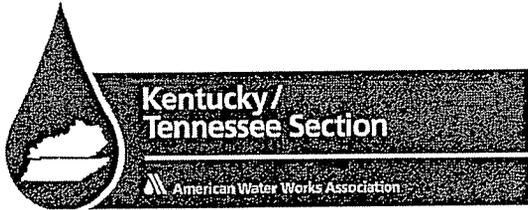
Neal Megonnell – Corporate Technical Sales Specialist

Neal Megonnell is a graduate of the University of Pittsburgh with a B.S. in Chemistry and a graduate of Carnegie Mellon University with an M.S. in Chemical Engineering/Colloids, Polymers, and Surfaces. Mr. Megonnell has been with Calgon Carbon Corporation for over 13 years, 12 of which were in Research and Development. He is currently responsible for specialty impregnated carbon sales, technical support for activated carbon applications in the brewing industry, and Municipal market strategy. He is a member of the Water Quality Association, American Chemical Society, American Institute of Chemical Engineers, the National Groundwater Association, and is Calgon Carbon Corporation's representative to the American Water Works Association research Foundation.

Contact Information:

Brian Fuchs  
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500 Calgon Carbon Drive  
Pittsburgh, PA 15205  
610-358-4733  
bfuchs@calgoncarbon-us.com

Neal Megonnell  
Calgon Carbon Corporation  
500 Calgon Carbon Drive  
Pittsburgh, PA 15205  
412-787-6638



Office Use Only

Session #: H

Session Date/Time:  
9/13 3:00

Moderator: \_\_\_\_\_

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: 2005 Joint Water Professionals Conference

CONFERENCE DATE: September 13, 2005

PAPER TITLE (128 Characters & Spaces Maximum)

Case Study

Frostburg MD--A Study of Granular Activated Carbon vs.  
Anthracite for Removal of DBPs, THMs and HAAs

PRESENTATION DESCRIPTION: (up to 30 words)

This paper will discuss the use of Granular Activated Carbon for DBP removal vs.  
Anthracite. The paper will also discuss various types of activated carbon

Laptop computer projector

AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Neal E. Megonnell

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY X

Title Director of Sales

Company Calgon Carbon Corporation

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City Pittsburgh State PA Zip 15205

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bon-us.com

PRESENTER BIO: (up to 100 words)

**Neal Megonnell – Director of Sales – Municipal and Personnel Protection**

Neal Megonnell is a graduate of the University of Pittsburgh with a B.S. in Chemistry and a graduate of Carnegie Mellon University with an M.S. in Chemical Engineering/Colloids, Polymers, and Surfaces. Mr. Megonnell has been with Calgon Carbon Corporation for 15 years, 12 of which were in Research and Development. He is currently responsible for specialty impregnated carbon sales, technical support for activated carbon applications in the brewing industry, and Municipal market strategy. He is a member of the Water Quality Association, American Chemical Society, American Institute of Chemical Engineers, the National Groundwater Association, and is Calgon Carbon Corporation's representative to the American Water Works Association research Foundation. Mr. Megonnell frequently presents at technical conferences and seminars concerning activated carbon fundamentals and applications.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER  POSTER

AREA OF CONSIDERATION:  WATER  COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH
- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY MANAGEMENT
- 

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Timothy E. Soward	
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TITLE OF PAPER (128 characters and spaces maximum):  
GAC Treatability Study at the NKWD Ft. Thomas Treatment Plant in response to the Stage II DBPR

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
June 1, 2005

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
NO

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

GAC Treatability Study  
at the  
Northern Kentucky Water District  
Fort Thomas Treatment Plant  
in response to the  
Stage II DBPR

Presented by

Timothy E. Soward  
General Engineering Laboratories

Co-authors:

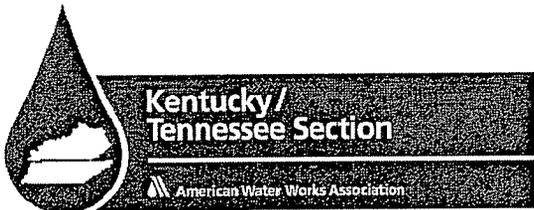
Mary Carol Wagner, NKWD  
Dr. R. Scott Summers, Professor, University of Colorado  
Bradley Zachman, Graduate Student, University of Colorado

In response to the requirements of the upcoming Stage II Disinfectants Disinfection Byproduct Rule (DBPR), the Northern Kentucky Water District (NKWD), conducted treatability studies utilizing granular activated carbon (GAC) to evaluate the removal of disinfection byproduct (DBP) precursors. The rapid small-scale column test (RSSCT) was utilized as the bench-scale method to simulate full-scale GAC performance. The treatment studies were performed on-site by General Engineering Laboratories (GEL) at the NKWD's Fort Thomas Treatment Plant. The Fort Thomas Treatment Plant (FTTP) is a 44 mgd, conventional coagulation, sedimentation, filtration plant. It is the largest of the three NKWD's treatment facilities. Raw water from the Ohio River is pumped to two presedimentation basins at the plant having a combined total of 72 million gallons. Following the presedimentation basins, the water is treated by four flocculation/ sedimentation basins, and then filtered through twelve mixed media filters.

Two sessions will be conducted to evaluate the impact of seasonal variability in source water quality on DBP precursor control by GAC. The first session already completed was performed during the fall of 2004. The second session will be completed during the spring of 2005. During each session, two empty-bed contact times were and will be evaluated (15 and 20 minutes). Anthracite based F – 400-carbon product was and will be evaluated during each of the sessions.

The RSSCT utilizes a proportional diffusivity design with a continuous flow GAC fixed-bed that is a dynamically scaled version of the full-scale GAC contactor. In addition to assessing the adsorption capacity of the GAC tested, the RSSCT evaluates the kinetics of the TOC breakthrough curve, i.e., the effluent concentration as a function of operation time. GEL ran the initial study out to 80% breakthrough meaning the study continued until the effluent TOC value rose to 80% of the influent TOC value of 2.69 mg/L.

Based upon compliance with the maximum contaminant levels (MCLs) for total trihalomethanes (TTHMs) and haloacetic acids – HAA (5) under the locational running annual average for the Stage II DBPR, the formation of TTHMs was the controlling parameter determining GAC reactivation frequency. During all runs, the Stage II MCL for TTHMs was exceeded prior to that for the sum of five haloacetic acids. The Stage II MCL for TTHMs of 80 ug/L was reached on the 15 minute EBCT column at 75 days and 140 days on the 20-minute EBCT column. SDS HAA(5) never exceeded the Stage II MCL of 60 ug/L on either column. It is very important to note that in full-scale, the staged blending of GAC effluents from multiple contactors will increase the run-times by a factor of 2.



<b>Office Use Only</b>	
Session #:	<u>4</u>
Session Date/Time:	<u>9/13 3:45</u>
Moderator:	_____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: KY/TN WATER PROFESSIONALS CONFERENCE 2005

CONFERENCE DATE: September 11-14

PAPER TITLE (128 Characters & Spaces Maximum)

Evaluation of GAC Adsorption of DBP Precursors for Compliance with the Stage 2 D/DBPR at the NKWD FTTP

PRESENTATION DESCRIPTION: (up to 30 words)

The NKWD FTTP is discussed in relation to the treatment challenges presented by the upcoming Stage 2 DBPR and the corresponding bench-scale evaluation of DBP precursor control by GAC using the Rapid Small Scale Column Test.

Power Point

AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Timothy Soward

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* **Soward is pronounced like the weapon "sword"** \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL X ONE-DAY

Title Drinking Water Program Manager

Company General Engineering Laboratories

Address 6954 Cornell Road

City Cincinnati State OH Zip 45242

Phone 513-489-2001 Fax 513-489-2223 E-Mail timothy.soward@gel.com

**PRESENTER BIO:** (up to 100 words)

Mr. Soward is currently Drinking Water Program Manager at General Engineering Laboratories, Cincinnati Ohio. He has 24 years of experience in laboratory operations including as president and owner of his own commercial drinking water laboratory.

He co-authored the Enhanced Coagulation Guidance Manual and Technologies and Costs for Control of Disinfection Byproducts now part of the congressional record for the Stage I DBPR. He also managed the development of EPA Methods 551.1 for THMs and 552.2 for HAAs.

He has a BS degree from Northern Kentucky University and attended graduate school at the University of Cincinnati, Department of Environmental Health.

Mr. Soward has been a member of AWWA since 1997 and is currently serving on the Operations Committee of the Kentucky Tennessee Section.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

NA

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

\_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

SEP 26  
2005

# 2005

**water**

**Professionals  
Conference**

Kentucky/  
Tennessee Section

American Water Works Association

KY  
TN WEA

# SESSION J

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANCE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

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CITY/ST/ZIP:	Louisville, KY 40202	Louisville, KY 40202
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FAX:	502-566-3068	
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TITLE OF PAPER (128 characters and spaces maximum):  
Asbestos Cement Pipe Removal and Replacement Methodology

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
August 2005

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
N/A

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

Abstract for: "Asbestos Cement Pipe Removal and Replacement Methodology"

Objective:

Within the Louisville Water Company (herein after referred to as LWC) water distribution system, approximately 85 miles of asbestos cement (herein after referred to as AC) water mains are in use. This pipe has a characteristic of frequently failing, and is reaching the end of its useful life wherever it is in use. For this reason, and others, the LWC would like to identify all feasible methods of AC pipe removal or replacement, and the necessary regulations that must be adhered to in order to complete the removal or disposal of the AC pipe.

Particularly, this paper will:

- Create a Selection Matrix for the available options for the removal/replacement of AC water main.
- Create a complete best practices guide for the removal/replacement of AC pipe for each of the feasible methods. This guide will adhere to all current Federal, state and local regulations

Scope:

Building on a recent report recommending further study of this subject, this paper will focus on the implementation of the available methods to remove or replace AC pipe and discuss the successes and/or failures of the feasible options as they are utilized in field trials.

The field trials will include:

- Damp Auger Reaming
- Pipe Reaming
- Conventional open cut and land filling
- Abandonment in place
- Pipe Bursting will not be performed. However, a discussion of that method of pipe replacement will be included

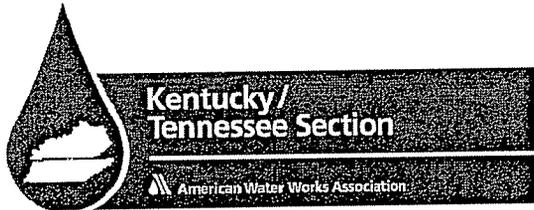
Method:

Currently, the LWC completes the elimination of AC pipe by conventional open cut trenching, and properly disposing of the AC pipe at an approved landfill site. This may be the most cost effective and environmentally safe method of AC pipe removal. However, there are trenchless options of pipe removal and replacement that exist, along with the option to simply abandon pipe in place. The determination of which option is more appropriate given the circumstances of field topography, zoning (industrial, residential), density of population, propensity for future digging in the project area, etc. will be discussed.

Results, Recommendations and Conclusions:

The results of this study include a discussion of the cost comparison, risk analysis based on field performance, and constructability of each option. This information will be combined into a recommended AC pipe removal and replacement matrix that will allow LWC engineers to quickly consider the options for their individual projects based on field conditions and cost.

In conclusion, this report will determine if any of the afore-mentioned pipe removal and replacement methods are unacceptable, and which are acceptable. In addition, if the field trials are inconclusive or if they fail, this paper will recommend a next course of action to continue to move towards a final determination of the best practices available for AC pipe removal.



Office Use Only

Session #: J

Session Date/Time:

9/13 9:00

Moderator: \_\_\_\_\_

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: 2005 Water Professionals Conference

CONFERENCE DATE: September 11-14, 2005

PAPER TITLE (128 Characters & Spaces Maximum)

Asbestos Cement Pipe Removal and Replacement Methodology

PRESENTATION DESCRIPTION: (up to 30 words)

A presentation discussing the Louisville Water Companies plans for investigating available methods for the removal of asbestos cement pipe.

AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Robert B. Campbell

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS:  FULL  ONE-DAY

Title Water and Wastewater Division Director

Company Qk4

Address 815 West Market Street

City Louisville State KY Zip 40202

Phone 502-992-2980 Fax 502-566-3068 E-Mail rcampbell@qk4.com

PRESENTER BIO: (up to 100 words)

Mr. Campbell Holds a Bachelors of Engineering Science, a Masters Degree in Civil Engineering, and a Certificate of environmental engineering from the University of Louisville. He has been employed at Qk4 since 1993 working in the fields of water and sanitary sewer design. Mr. Campbell is a graduate of the Leadership PE program in Kentucky, and is a licensed professional engineer in the State of Kentucky.

Mr. McCord has over seventeen years of experience in managing hazardous materials and environmental regulatory compliance issues in the petroleum, petrochemical, lighting and compressor manufacturing fields as well as potable water production and distribution. He holds a BSME from Purdue University and an MBA from Washington University in St. Louis. Mr. McCord is a Licensed Professional Engineer and was previously qualified as a Certified Hazardous Materials Manager (Masters Level). Mr. McCord joined the Louisville Water Company in early 1999 as the Manager of its Infrastructure Planning Business System that included Capital Planning, Hydraulics, Business Development and Planning, and Geographic Information Systems. In 2004, Mr. McCord was named Director, Pipeline Design & Construction.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) Mr. Ralph Y. McCord

CONFERENCE REGISTRATION STATUS: FULL X ONE-DAY

Title Director, Pipeline Design & Construction

Company Louisville Water Company

Address 550 South Third Street

City Louisville State Ky. Zip 40202

Phone 502-569-3600 Fax 502-569-3691 E-Mail rmccord@lwcky.com

MAIN AUTHOR (if different from above) Same

Title \_\_\_\_\_

Company \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Terry Engelhardt	
COMPANY:	Hach Company	
ADDRESS:	P.O. Box 389	
CITY/ST/ZIP:	Loveland, CO 80539	
PHONE:	970-461-3910	
FAX:	97-461-3916	
EMAIL:	tengelha@hach.com	

TITLE OF PAPER (128 characters and spaces maximum):  
Monitoring the Distribution System for Contamination- Technical Challenges and Legal Liabilities

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
Complete

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
Similar subject matter has been presented at other AWWA section meetings

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE  
EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005  
JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental  
material will be accepted)

Monitoring the Distribution System for Contamination-  
Technical Challenges and Legal Liabilities

Terry Engelhardt, Application Sales Engineer  
Homeland Security Technologies  
Hach Company  
P.O. Box 389  
Loveland, CO 80539  
Phone: 970-461-3910; Fax: 970-461-3916  
E-mail: tengelha@hach.com

Abstract

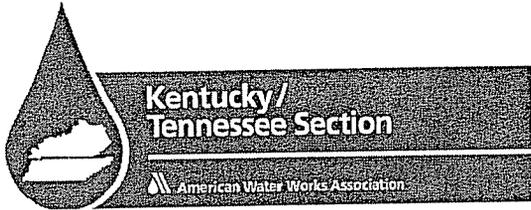
Following September 11, 2001, there have been significant concerns that water distribution systems are vulnerable to attack.

A few cities have already implemented extensive monitoring systems; many others are studying their needs. There are no magic analytical tools that are readily available, reliable and within the financial resources of a water utility that can detect or quantify the array of chemical and biological substances one might reasonably expect to encounter.

This presentation will explore how utilities are currently using readily available measurements to monitor their distribution systems. The presentation will discuss applications of monitoring technologies for detection of system variation due to 'normal' water quality anomalies as well as presence of threat agents.

A new computer tool will help speed the process of understanding and documenting system variations and it is capable of identifying the presence of certain harmful contaminants that may have been introduced intentionally to the water system.

Potential legal liabilities for both the manufacturer of the equipment and the water utility using the equipment are enormous. Sovereign Immunity likely will not protect the utility. The Safety Act may address these concerns. The Safety Act and its potential impact on manufacturers also will be discussed.



<b>Office Use Only</b>
Session #: <u>  J  </u>
Session Date/Time: <u>  9/13 9:45 AM  </u>
Moderator: _____

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME:   2005 Joint Water Professionals Conference  

CONFERENCE DATE:   Tuesday, September 13, 2005  

PAPER TITLE (128 Characters & Spaces Maximum)

Monitoring the Distribution System to Contamination--Technical and Legal  
Liabilities

PRESENTATION DESCRIPTION: (up to 30 words)

This presentation will describe research in monitoring of distribution systems for  
contamination events and analytical measurements that are practical and effective.  
The legal issues faced by utilities in the event of intentional contamination of a water  
distribution system also will be discussed..

LCD Projector, Screen.

AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment  
needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.)   Mr. Terry Engelhardt  

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator  
during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title   Application Sales Engineer  

Company   Hach Company  

Address   P.O. Box 389  

City   Loveland   State   CO   Zip   80539  

Phone   970-461-3910   Fax   970-461-3916   E-Mail   tengelha@hach.com

PRESENTER BIO: (up to 100 words)

Terry Engelhardt is an application sales engineer with Hach Homeland Security Technologies. Mr. Engelhardt has an MS degree in Natural Science. He joined Hach Company in 1983. Prior to joining Hach, Mr. Engelhardt had extensive experience in water treatment including water distribution mechanic, water plant operator, water treatment superintendent and water/wastewater operator instructor at a vocational school. He is a member of AWWA, WEF and AFS.

CO-PRESENTER

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	Thomas E. Dumm, PE	George B. Rest, PE
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EMAIL:	dummte@obg.com	restgb@obg.com

TITLE OF PAPER (128 characters and spaces maximum):  
Creative Approaches and Tools for Regional Water Supply Planning

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
2004 (completion of feasibility study findings to be presented as well as subsequent accomplishments)

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
Virginia and Chesapeake Sections of AWWA (2004)

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

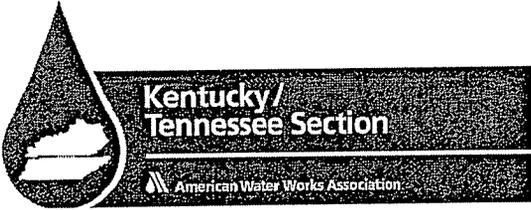
ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

Droughts and competing uses for existing water supplies in recent years have fostered creative approaches to water supply planning in the United States. In central Kentucky, O'Brien & Gere has been working with the Bluegrass Water Supply Commission which consists of nine water utilities (including the City of Lexington) to address the potable water needs of 700,000 residents in the region through 2020. A water system regionalization feasibility study was completed in 2004 which addressed the following key objectives:

- Optimizing regional water supplies using a grid network of water pipelines to move potable water to where it is needed.
- Bringing "on-line" highly reliable sources of additional supply within 3 to 5 years.
- Developing a financial plan that is affordable and fairly apportions costs.
- Implementing a management/ownership approach that is fair and flexible.
- Utilizing a comprehensive program of public participation and outreach to effectively communicate the study process and findings.

This paper will present the challenges and findings from the water system regionalization feasibility study including:

- Addressing drinking water regulatory issues associated with monitoring potable water quality in a regional grid network served by both a regional supplier and individual suppliers.
- Evaluating over 40 water supply alternatives using pair-wise comparison techniques and other decision-making tools.
- Addressing financial issues associated with water sales including: sales to wholesale customers, common unit cost charges to all members, take or pay contracts, and tax-exempt debt financing.
- Developing a new organization to oversee management and operation of the proposed regional waterworks facilities (organizational structure, services to be provided, financing, management philosophy, and membership).
- Conducting highly-effective workshops and making critical decisions with the public and agencies personnel present.



<b>Office Use Only</b>	
Session #:	<u>J</u>
Session Date/Time:	<u>9/13 10:45</u>
Moderator:	_____

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME: 2005 Joint Water Professionals Conference

CONFERENCE DATE: September 13, 2005

PAPER TITLE (128 Characters & Spaces Maximum)  
Creative Approaches and Tools for Regional Water Supply Planning

PRESENTATION DESCRIPTION: (up to 30 words)  
O'Brien & Gere conducted a feasibility study for 17 water utilities in central Kentucky to address the potable water needs of 700,000 residents. The study addressed water pipelines and supplies, finances, management/ownership, and public outreach.

AUDIO VISUAL NEEDS:  
*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. George B. Rest, PE  
*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Mr. George B. Rest, PE Senior Vice President

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City Landover State MD Zip 20785

Phone 301.731.1162 Fax 301.577.4737 E-Mail restgb@obg.com

PRESENTER BIO: (up to 100 words)

Presenter's Residence: Washington, DC

Current Job Title: Sr. Vice President

When did you begin working for your present employer? 1976

If a college graduate, give name and location of school(s) you attended:

- BS Civil Engineering (Summa Cum Laude) from Union College and MS Sanitary Engineering from Syracuse University

List any civic or fraternal organizations to which you belong:

- Chesapeake Section AWWA Past Chair

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE

TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANACE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

NAME:	David Haas	See Co-authors listed in abstract
COMPANY:	Jordan, Jones & Goulding	
ADDRESS:	6801 Governors Lake Parkway	
CITY/ST/ZIP:	Norcross, GA 30071	
PHONE:	770 455 8555	
FAX:	770 455 7391	
EMAIL:	dhaas@jjg.com	

TITLE OF PAPER (128 characters and spaces maximum):

Considerations for Retrofit of an Engineered Ceramic Filter Media at the First Utility District WTP

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

February 2005 (piloting is already complete; finalizing data analysis now)

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

n/a

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

The First Utility District of Knox County in an effort to explore new technologies that would best fit their needs to increase the capacity and water quality of their existing filtration plant evaluated Kinetico's Macrolite® media in comparison to conventional media designs. A 4-week pilot study was undertaken to evaluate various ceramic filter media designs offered by the manufacturer. Some of the potential benefits of ceramic media documented by the manufacturer include:

- Increased filtration rates (up to 10 gpm/sf)
- Improved particulate removal, including Giardia and Cryptosporidium
- Reduced backwash water

Since the FUD WTP already operates at a permitted capacity of 6 gpm/sf, it is unlikely that TDEC will consider approval of higher filtration rates. Therefore, the study focused more on the ability of the ceramic media to achieve better water quality with a goal of sustaining filtered water effluent turbidity of less than 0.1 NTU, 95% of the time for each individual filter. If successful, this level of performance would allow FUD to qualify for an additional 1.0-log removal credit of Cryptosporidium based on the draft LT2ESWTR.

This paper presents an overview of the testing program, its results, and the conclusions reached about retrofitting the FUD WTP with an engineered ceramic media design.

Coauthors (not presenters): Wil Jackson, First Utility District; Major Lenart, Kinetico

J  
7/13 1100

**David L. Haas, P.E.**  
**Jordan, Jones & Goulding, Inc.**  
6801 Governors Lake Parkway  
Norcross, Georgia 30071  
Office (770) 455-8555  
FAX (770) 455-7391

**David Haas is a Senior Project Manager with Jordan, Jones and Goulding, Inc. with 20 years of experience in municipal water supply, treatment, and distribution system projects. He was the project manager for the First Utility District's water treatment expansion from 21 to 34 MGD in which ceramic filter media was considered as a replacement to conventional media (the subject of this paper). Mr. Haas received a Bachelor of Science and Master of Environmental Engineering from the University of Louisville.**

## Using Multiple Parameters to Evaluate Coagulation Effectiveness

Paul H. Hargette, P.E.  
Black & Veatch Corporation  
201 Brookfield Parkway, Suite 150  
Greenville, South Carolina 29607  
Phone: (864) 234-6678  
Fax: (864) 234-0784

George Budd  
Jeff Coggins  
Black & Veatch Corporation

Bill Brewer  
Ron Hargrove  
Winston-Salem Forsyth County City/County Utilities

### ABSTRACT

Coagulation lies at the heart of many water treatment process sequences due to its effect on removal of particulates that can be associated with microbial contaminants and organic constituents that affect disinfection byproduct formation. The addition of metal coagulants to water has a number of effects that are interrelated. These effects include the addition of a hydrolyzing metal that forms the basic coagulating species, changes in pH, and associated changes in the surface charge properties of the particles that are being coagulated.

This paper will present results from recent bench-scale testing at two water treatment plants in Winston-Salem, North Carolina, where four basic parameters were utilized as a measure of coagulation effectiveness: settled turbidity, filterability index, zeta potential, and streaming current. This work demonstrated that each of these parameters is affected by changes in coagulant dose and pH and a multidimensional characterization was developed to map these changes. Optimum combinations of pH and coagulant dose were identified for each of these parameters and a good general correlation among the parameters was observed. Testing was performed for both cold water and warm water conditions, and comparisons were made for alum as well as two iron-based coagulants, and two polyaluminum chlorides.



**PRESENTER BIO:** (up to 100 words)

Paul is a Process Engineer with Black & Veatch specializing in water treatment and distribution projects. Paul has a Bachelor's Degree in Civil Engineering and a Master's Degree in Environmental Engineering from Virginia Tech.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

**Title** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

**City** \_\_\_\_\_ **State** \_\_\_\_\_ **Zip** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_ **E-Mail** \_\_\_\_\_

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER  POSTER

AREA OF CONSIDERATION:  WATER  COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- |  |  |
|--|--|
| <input type="checkbox"/> CUSTOMER SERVICE & FINANACE | <input checked="" type="checkbox"/> ENGINEERING & CONSTRUCTION |
| <input type="checkbox"/> SAFETY AND SECURITY         | <input type="checkbox"/> PUBLIC INFORMATION                    |
| <input type="checkbox"/> SMALL SYSTEMS               | <input type="checkbox"/> WATER RESOURCES & CONSERVATION        |
| <input type="checkbox"/> PLANT OPERATIONS            | <input type="checkbox"/> WATER QUALITY                         |
| <input type="checkbox"/> DISTRIBUTION                | <input type="checkbox"/> MANAGEMENT                            |
| <input type="checkbox"/> RESEARCH                    |  |

PRESENTATION INFORMATION:

PRESENTER(S):

NAME: Samantha Kendrick  
 COMPANY: ZENON Environmental  
 ADDRESS: 3239 Dundas St. West  
 CITY/ST/ZIP: Oakville, ON L6M 4A8 Canada  
 PHONE: (905) 465-3030 ext. 3232  
 FAX: (905) 465-3050  
 EMAIL: skendric@zenon.com

TITLE OF PAPER (128 characters and spaces maximum):  
Diverse Immersed Ultrafiltration Membrane Solutions for Drinking Water Treatment

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:  
N/A

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:  
\_\_\_\_\_

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:  
ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE  
EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005  
JPC.

EMAIL ADDRESS: Julie.Roney@ky.gov

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

## **Diverse Immersed Ultrafiltration Membrane Solutions for Drinking Water Treatment**

**S. Kendrick, B. Eng; G. Best, P. Eng.; T. Sword  
ZENON Environmental Inc., Oakville, Ontario**

### **ABSTRACT**

With more than ten years on the market, immersed ultrafiltration membranes have been utilized to treat a variety of water sources in diverse applications for drinking water treatment. This has been possible due to the development of two distinct membranes. The reinforced membrane, originally designed for use in wastewater applications, evolved to direct filtration drinking water applications in 1992. Since then, it has been used as an ultrafilter in combination with coagulation-filtration for organics removal, as well as with powdered activated carbon (PAC) injection. Since its inception, continuous improvements have been made to the membrane chemistry and cassette assembly in order to reduce costs and improve performance. An unsupported fiber was developed in 2000 for the treatment of less turbid feed waters for drinking water applications.

Several drinking water treatment plants in Tennessee have selected immersed ultrafiltration membranes. Each of these plants is designed for surface water treatment, but each plant has a distinct design. The designs are based on the particular feed water characteristics, as well as owner's requirements with respect to flexibility and recovery.

This paper will compare and contrast the design, capital and operating and maintenance costs of two drinking water treatment plants in Tennessee: The Water Authority of Dickson County 5 MGD WTP, designed with reinforced membranes for treatment of coagulated raw water without clarification and the Duck River 9.5 MGD Water Treatment Plant, designed with un-reinforced membranes for the treatment of clarified water.



Company ZENON Environmental

Address 3239 Dundas St. West

City Oakville State ON Zip L6M 4A8

Phone 905-465-3030 Fax 905-465-3050 E-Mail skendric@zenon.com

**PRESENTER BIO:** (up to 100 words)

Ms. Kendrick joined Zenon's Municipal Division in April 2000. She graduated with a Bachelors degree in Chemical Engineering and minor in Environmental Engineering from McGill University in Montreal, Canada. In her current position as Drinking Water Process Manager for the Eastern US, she is responsible for overseeing the design of all drinking water plant designs in that region. Samantha has been involved in the design of water plants for various applications including direct filtration, coagulation/filtration, settled water and iron and manganese removal.

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

2005 KENTUCKY-TENNESSEE JOINT PROFESSIONALS CONFERENCE  
TECHNICAL PROGRAM ABSTRACT SUBMITTAL GUIDELINES AND FORM

PAPER

POSTER

AREA OF CONSIDERATION:  WATER

COMMON ISSUES  
(Both water and wastewater)

TOPIC CATEGORY:

- CUSTOMER SERVICE & FINANCE
- SAFETY AND SECURITY
- SMALL SYSTEMS
- PLANT OPERATIONS
- DISTRIBUTION
- RESEARCH

- ENGINEERING & CONSTRUCTION
- PUBLIC INFORMATION
- WATER RESOURCES & CONSERVATION
- WATER QUALITY
- MANAGEMENT

PRESENTATION INFORMATION:

PRESENTER(S):

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FAX:	859-224-1025	
EMAIL:	bryan.lovan@tetrattech.com	

TITLE OF PAPER (128 characters and spaces maximum):

Preparing for a New Water Treatment Technology in Kentucky: Low Pressure Reverse Osmosis Treatment of Groundwater

DATE PROJECT DETAILED IN THE PRESENTATION WILL BE COMPLETE:

April 2004

IF SIMILAR WORK HAS BEEN PRESENTED PREVIOUSLY, WHEN AND WHERE:

AWWA ANNUAL CONFERENCE, ORLANDO, FLORIDA June 2004

IF EMAILING ABSTRACT, THE FILE NAME SHOULD BE:

ABSTRACT\_BRIEFTITLE\_MAIN AUTHOR. IN THE SUBJECT LINE OF THE EMAIL, SPECIFY THAT THE ATTACHED FILE IS AN ABSTRACT FOR THE 2005 JPC.

ABSTRACT (attached): (maximum of 3,000 characters and spaces--NO supplemental material will be accepted)

The City of Hardinsburg, Kentucky (City) currently owns and operates a 1.6 MGD surface water treatment plant located on Rough River Reservoir in the extreme southern portion of Breckinridge County, Kentucky.

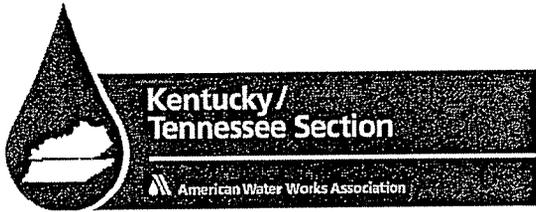
The current water treatment plant (WTP) obtains its water from a tributary to the main stem of the reservoir. For several years, the City has been battling with siltation problems with the raw water intake structure and the formation of trihalomethane due to the high organic content of the reservoir's water.

Since 1999, the City has been looking for a new and reliable raw water source for their customers. In 2001, the City made the decision to relocate the WTP to the alluvium fields along the Ohio River in the northeast part of the county (approximately 20 miles from the existing WTP.)

In July 2001, a pump test of the groundwater determined an abundant source of water for a new plant to serve the City, now and for many years in the future. However, after receiving the water quality test results, the news was not as exciting. Results indicated high hardness ( $> 300 \text{ mg/l CaCO}_3$ ) and high nitrate levels ( $8 \text{ mg/l} \pm$ ) in the groundwater. The City was determined that the local groundwater was the raw water source to use for the new WTP and not be faced with similar problems at a surface water treatment plant they are now addressing.

The City was perplexed in what type of treatment technology to use for the new plant. The City was determined that the new WTP would be a state-of-the-art treatment plant to meet the current water quality regulations as well as being prepared for future regulations.

The treatment technology of choice was low pressure reverse osmosis (LPRO) to remove the high hardness and high levels of nitrates with one treatment process. Since this treatment technology is the first of its kind in the State of Kentucky for treatment of groundwater on a potable drinking water system, a on-site pilot test was proposed to be conducted on the local groundwater. This paper will discuss the procedures and protocol developed in conducting the pilot study demonstrating hardness and nitrate removal with LPRO and the results of the 90 day test period. This paper will also discuss how the pilot study assisted the engineers in evaluating the final water quality of the permeate using predictions of the pilot unit for the full scale plant and evaluate the raw water blending percentages in the order to meet the water quality goals established by the City for the final product.



Office Use Only

Session #: J

Session Date/Time:

9/13 3:45

Moderator: \_\_\_\_\_

## Kentucky/Tennessee Section AWWA Speaker Introduction Form

CONFERENCE NAME: 2005 Water Professionals Conference

CONFERENCE DATE: September 11-14, 2005

PAPER TITLE (128 Characters & Spaces Maximum) **Preparing for a New Water Treatment Technology in Kentucky: Low Pressure Reverse Osmosis for the Treatment of Groundwater**

PRESENTATION DESCRIPTION: (up to 30 words) **The presentation will be about a reverse osmosis pilot study and how the study assisted in design of the first reverse osmosis plant in Kentucky for a potable drinking water system.**

AUDIO VISUAL NEEDS: **None**

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

PRESENTER (please note Mr., Mrs., Ms., or Dr.) Mr. Bryan K. Lovan

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title Project Manager

Company O'Brien & Gere Engineers, Inc.

Address 2333 Alexandria Drive

City Lexington State KY Zip 40504

Phone 859-514-6055 Fax 859-514-6001 E-Mail lovanbk@obg.com

PRESENTER BIO: (up to 100 words) **Mr. Lovan has more than 25 years of professional experience. He has been responsible for the development of various projects from the conceptual planning to preparing engineering design reports, conducting project specific pilot studies, and overseeing project completion through the construction phase for various engineering projects. Mr. Lovan supervises various designers and engineers on projects for water distribution, treatment, and storage systems from 0.5 MGD to 30 MGD capacity; wastewater collection and sewage pumping systems; design and analysis of dams and other related hydraulic structures for water supply and flood control.**

**CO-PRESENTER**

(Please note that there is a maximum of two presenters allowed for each presentation.)

NAME (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

MAIN AUTHOR (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

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# 2005

**water**

**Professionals  
Conference**

 Kentucky/  
Tennessee Section

 American Water Works Association

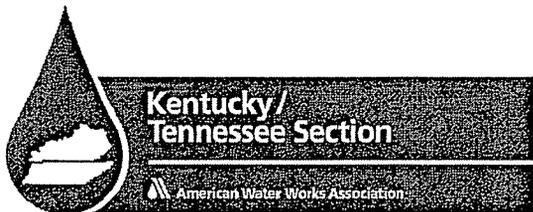
 KY  
TN WEA

# SESSION L

**Emergency Response Toolbox Overview (Session L)**  
**Tabletop Exercise Demonstration**  
**Wednesday, September 14, 2005**  
**9:00 – 12:00**

These 2 presentations will cover the EPA Emergency Response Toolbox, a series of 6 modules designed to assist water and wastewater systems in preparing for, handling and recovering from emergencies of all types. The following tabletop exercise will provide a mock demonstration of how an emergency would play out, the agencies and individuals involved and the complex interaction that must go on to successfully resolve an emergency.

The Horsley-Witten Group is the EPA contractor instrumental in the development of the “Emergency Response Tabletop Exercises for Drinking Water and Wastewater Systems” CD-ROM.



Office Use Only

Session #:   L  

Session Date/Time:

  9/14     9:00 AM  

Moderator: \_\_\_\_\_

**Kentucky/Tennessee Section AWWA  
Speaker Introduction Form**

CONFERENCE NAME:   Water Professionals Conference 2005  

CONFERENCE DATE:   September 11-14, 2005  

PAPER TITLE (128 Characters & Spaces Maximum)

  N/A  

PRESENTATION DESCRIPTION: (up to 30 words)

*An overview of EPA's Response Protocol Toolbox: Planning for and Responding to Contamination Threats to Drinking Water Systems and an Enhanced Tabletop Exercise Demonstration.*

AUDIO VISUAL NEEDS:

*A laptop computer, projector and screen will be provided in each session room. Additional equipment needs should be identified below:*

Sound system that connects to the computer or external speakers for the computer. A microphone (wireless preferred but not necessary).

PRESENTER (please note Mr., Mrs., Ms., or Dr.)   Mr. Tom Noble  

*If applicable, please provide the phonetic spelling of the presenter's name to assist the moderator during introductions.* \_\_\_\_\_

CONFERENCE REGISTRATION STATUS: FULL  ONE-DAY

  N/A  

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

**PRESENTER BIO:** (up to 100 words)

Tom Noble is a Project Manager and Hydrologist for the Horsley Witten Group. As the firm's water security lead, Tom manages the company's current work assignment with the US EPA Water Security Division. This project involves several training and outreach efforts and products. Examples include the Emergency Response Tabletop Exercises for Drinking Water and Wastewater Systems CD and EPA's regional Train-the-Trainer workshop series. Tom is also currently assisting the state of Maryland to develop their water security program and assisted Pennsylvania to train their water supply personnel last fall.

**CO-PRESENTER:**

Julie Conroy is an Environmental Planner who recently joined the Horsley Witten Group. In her previous position with the Massachusetts Executive Office of Environmental Affairs she served as the coastal non-point water quality grants coordinator, assisting coastal communities in Massachusetts to manage non-point pollution sources such as stormwater. Her work also included many public presentations at the local level regarding stormwater management and low impact development.

**NAME** (please note Mr., Mrs., Ms., or Dr.) \_\_\_\_\_

**CONFERENCE REGISTRATION STATUS:** FULL  ONE-DAY

N/A

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ E-Mail \_\_\_\_\_

**MAIN AUTHOR** (if different from above) \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

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